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Gleanings in BEE CULTURE

June 1961

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Gleanings in Bee Culture

June, 1961 CONTENTS Vol. 89, No. 6

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COVER PICTURE — This month's cover picture is dedicated to the bee inspector of our country. What would happen to the beekeeping industry if we did not have an adequate bee inspection system? Bee inspectors are needed to help control bee diseases which would soon wipe out the honeybee population if proper control measures were not applied. Bee inspectors are rendering an essential service — not only in controlling bee diseases but also in educating beekeepers in better methods of handling bees. Our hats are off to the faithful bee inspectors of our country. — USDA Photo.

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Gleanings' Mail Box

JACK HAPP

Dear Editor:

We beekeepers have been lulled into the idea that we have nothing to worry about as far as selling our last season's crop at a fair price by the market reports of your magazine and the other leading bee magazines in this country to which I and my father have been subscribers for many years.

I am still holding my last year's crop with no offers — nice, light, mild-flavored honey. I think there are not going to be any offers.

You say "why not?" I'll tell you why if you don't already know and if you don't you should, if you are going to perform a service of enlightenment to your readers.

One producer who is also holding his honey looking for a buyer made a trip to Los Angeles and found that beginning last October about 2,000,000 pounds of light honey has been imported into the U. S. at about 14 to 14¾ cents per pound from Argentina and is still going on. This is fine for the packers up to a certain point — but when we who are still holding our honey need to convert it to cash, will if necessary, cut the 14 cent price to convert it or pack it and undersell the packer it will come right back in his lap and to his detriment as well as to the producers'. I have all due respect for the packers' problems which are many but this importing honey at one to two cents per pound less than the price of domestic honey of like or better quality is going to ruin us, plagued as we are with rising costs of production and other production problems as drouth, weed control, changing agricultural practices, etc.

I would like to see a little more fact in the market report.

The producers of top grade honey at least have a problem here and it is apparent that some are going to get hurt. The situation is going to get worse before it gets better.

I have written to numerous large buyers of honey; none interested; some won't even give the courtesy of an answer; one wanted to know if I would be interested in 14½ cents. He didn't make this offer but wanted to know if I was interested.

Yours for the truth in market reports, — R.O.G., Mont.

Dear Editor:

I would like to report to you that the notice you placed in Gleanings was well read. I am speaking of the two announcements regarding Circular 225, "How to Build a Solar Wax Extractor" and Circular 186, "Honey Candies".

We have received hundeds of requests from all the states excepting six. Requests came from six provinces of Canada and from four foreign countries. Gleanings must be read by many beekeepers over a large part of the world. — E.J.A., Pa.

Dear Editor:

A bee hive is a bee hive regardless of whether it is on the front of Gleanings or in our back yard.

There are so many other subjects more interesting that we beekeepers would like to see on the cover of your magazine — March and April were good examples, and now **May**, another bee hive! **Egad!**

More interesting covers, please, to match your informative and eye-catching copy of the inside of Gleanings.

—Mrs. R.J.A., Texas.

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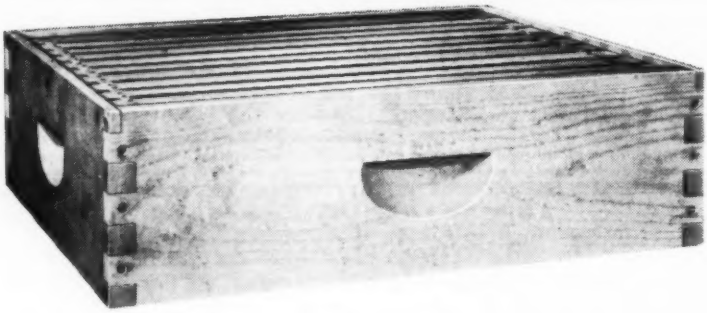

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of Bee Supplies
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As in the past we will be shipping **PACKAGE BEES** as of April 1st. Are you listed for shipment? Many dates are filled to capacity now (March 6th). Give us a try if you still need bees. We are sorry if we could not accept your queen order. Packages require so many queens that we have to limit shipment of individual queens until after May 10th. Give us your order for queens to be shipped after that time. If at all possible we will supply you. Refer to last issue of journals for package prices. Queen prices as follows:

	Regular Italian	
	to May 20th	after 5/20
1-24	$1.45 ea.	$1.20 ea.
25-99	1.35	1.10
100 up	1.25	1.00
	Island Hybrid	
	to May 20th	after 5/20
1-24	$1.75 ea.	$1.50 ea.
25-99	1.65	1.40
100 up	1.55	1.30

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Monthly HONEY Report

WALTER BARTH
Field Editor
San Antonio, Texas

GOOD NEWS for sweet clover areas with the report on the development of a new improved sweet clover. A non-bitter sweet clover called **Denta,** the first to be developed in the United States, was cooperatively released last week by the U. S. Department of Agriculture and the Wisconsin Experiment Station. The new variety has only one-twentieth as much coumarin, a crystalline compound with a vanilla-like aroma, as other sweet clover have. Most other sweet clovers, scientists say, have a high content of coumarin which makes them smell sweet but gives them a bitter taste unpalatable to most livestock.

Sweet clover produces fine table honey and some of the finest comb honey. A glance through some of the Gleanings of 30 years ago will show how valuable sweet clover once was to our industry. Yellow sweet clover yields profusely and has a high sugar content in the nectar. . . .as high as 66 percent sugar. So it is good news to hear of the new Denta sweet clover and we can only hope that it will result in new and more plantings of this very valuable honey plant.

The new Denta is reported to be suitable for growing in the Northern Great Plains and Western Cornbelt. Foundation seed will be available in 1962 to certified seed growers, and certified seed should be available for farm plantings in 1963.

New Honey Product

Honey drops are a recent import from France. This is a unique honey lozenge that is among the new imports. Known as "Bonbons Suc des Vosages" overseas, they are being labeled here as honey drops. Europeans are reported to have been using these mentholated honey lozenges for nearly 50 years. The drops are packaged in decorative green tin boxes and retail for 30 cents. More details are available from the importer, Marland Importing Co., 64-39 98th Street, Forest Hills 74, L. I., New York.

Beekeepers interested in marketing should avail themselves of the free Miscellaneous Publication No. 856, "Food Costs - retail prices, farm prices, and marketing spreads". Just a postcard will bring a copy of this new April 1961 booklet to you. Write to the Agricultural Marketing Service, U. S. Department of Agriculture, Washington, D. C. This informative booklet, well illustrated with charts, will show the cause of the high retail prices of products as they appear on the store shelf. . . . .a sometimes sharp contrast to what the producer receives.

By now all of us will be familiar with the new honey price support. Gleanings will carry more details as they are made available to the editors. I've been hearing pros and cons on the new price of 11.2 cents per pound. However, all agree that without any price support the bottom would fall out of the honey market without any lowering of the retail market to encourage increased purchases. Sure hope that Gleanings' read-

(Continued on page 379)

QUEENS

ITALIANS CAUCASIANS

We will have an abundance of good Italian or Caucasian queens after our package shipping season is over so it will pay you to get a good young queen in those colonies at these prices.
We can still supply you with packages.

REDUCED PRICES AFTER MAY 20th

In lots of	Queens	2 lb & Q.	3 lb. & Q.	4 lb. & Q.	5 lb. & Q.
1 - 24	$ .75	$3.75	$4.90	$5.75	$6.75
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Tested Queens $1.50 each

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Consistently high quality which includes characteristics most desired does not just happen. Breeding queens and queen rearing techniques must be correct and no single detail can be overlooked or lightly passed by. Good stock properly handled will assure longer "Prime of Life", gentleness, higher honey production and will make your beekeeping pleasant and profitable.
Why not join our list of satisfied customers NOW?

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1-24	25-99	100 up	1-24	25-99	100 up
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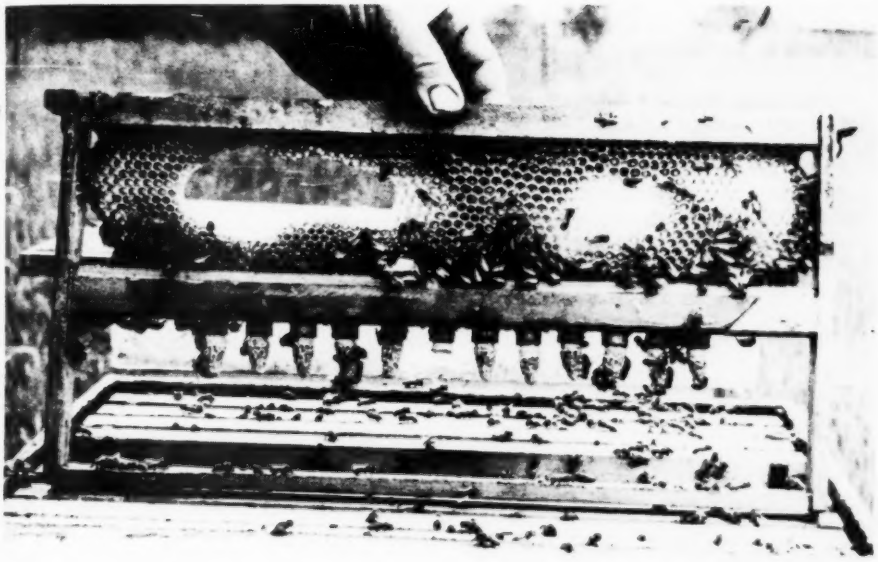


A cell bar is placed in the middle of a standard brood frame to hold the queen cells while they develop. Each queen cell is separated just before they are ready to hatch.

Queen Rearing In Your Own Backyard

An experience you won't forget
and one that will give you a
better understanding of your bees.

KENNETH E. FARNER
Flint, Michigan

THE BEEKEEPER who never tried to raise a few queens for his own use has missed out on one of the pleasures of beekeeping as well as a lot of good queens. With a small amount of equipment and a little time, most any bee-

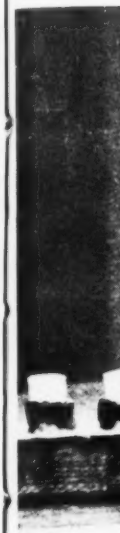
keeper can produce some fine queens in his own backyard. Also there is the satisfaction to be able to reproduce daughters of that extra good old queen that you have been so fond of for the past two or three years.

Getting the bees to build queen cells with the larvae you have selected for them seems to be the hardest part of queen rearing. All you have to do is to duplicate the conditions that cause the bees to want to build queen cells. From then on it is a matter of exact timing, for a slight miscalculation as to when the ripe cells will hatch and all will be lost. The first virgin hatched will destroy the entire batch and be strutting around as queen of all her domain by the time you get there. I have had a virgin from a nearby hive while on her early trial flights, fly into a cell finishing hive and destroy all of the cells just before they were ready to hatch. A virgin queen loose in a bee yard is very unpredictable and will be taken in and accepted by any queenless colony. Several times I have found marked virgins mated and laying in different hives than in which they were raised and on the opposite side of the beeyard.

Since I try to keep a pure strain of Italian bees, that is what I look for first when selecting a breeding queen. As I find any mixture is hard to keep and will not hold fixed characteristics, especially in open air mating, good honey production and gentleness come next in that order. Sometimes other qualities such as non-swarming or good comb building can be found in some strains and transferred to the daughters of a good breeding queen. Comb honey producers usually raise their own queen and by years of selection, develop the qualities to suit their requirements. Several times I have tried to rear queens from mothers of outstanding honey producing colonies, only to find that the bees of their daughters had none of those qualities. It is possible those mother queens were a mutation or that the colonies were favored by some conditions that I did not know about. The physical appearance of a breeding queen should be large and full bodied. Her abdomen should be deep, quite plump and not tapered at the tip. Also her eggs should be laid in an even pattern and brood be solid. The marking of her worker bees and drones will help tell the purity of her blood and mating. In a good Italian strain I like to see the worker bees with uniform yellow and black bands and not too dark. The color of the drones is very important since they are not affected by the queen's mating. I look for drones that are quite dark, uniform in color and at least one yellow band on each one.

A good way to get grafted queen cells accepted and started, is to look for a colony that is superseding its old queen or one starting swarm cells. Such colonies are prepared and already in the mood to build queen cells. Before I put in a cell bar with grafted cells I destroy all of the queen cells that were started by the bees in these hives. If colonies like these cannot be found, then this condition can be created by making a colony queenless and removing all unsealed brood and eggs. This is called a cell starting colony. About 24 hours later, they are ready to accept the prepared cell bars. If honey is not coming in freely a feeder with thin syrup should be kept on the cell building colony all the time it is building cells. One time during July, I remember that a cell finishing colony destroyed a batch of cells that were sealed when bad weather temporarily stopped the honey flow.

There are several methods of handling queen cells and getting them started. I like to use the wax cells and little wood cell holders. These are very easy to handle and it seems there is less damage to the tender queen cells. Some stick the artificial wax cells directly to the cell bar. Also I have tried inserting a frame of young larvae from the breeder queen colony directly into the queenless starting colony. The cells built by this method are difficult to cut out and handle. Most queen rearing equipment can be purchased from your bee supply dealer. Besides the wax cell cups and wood cell cup holders a transferring or grafting needle and a jelly spoon are essential. I find also the wire spiral queen cell protectors very convenient to use when rearing queens on a small scale. A frame to hold the queen cells can be made quite easily from a standard brood frame by putting one or two thin wood bars lengthwise through the middle. I stick the wood cell holders onto the cross bars with hot beeswax and press a wax cell cup in each one.



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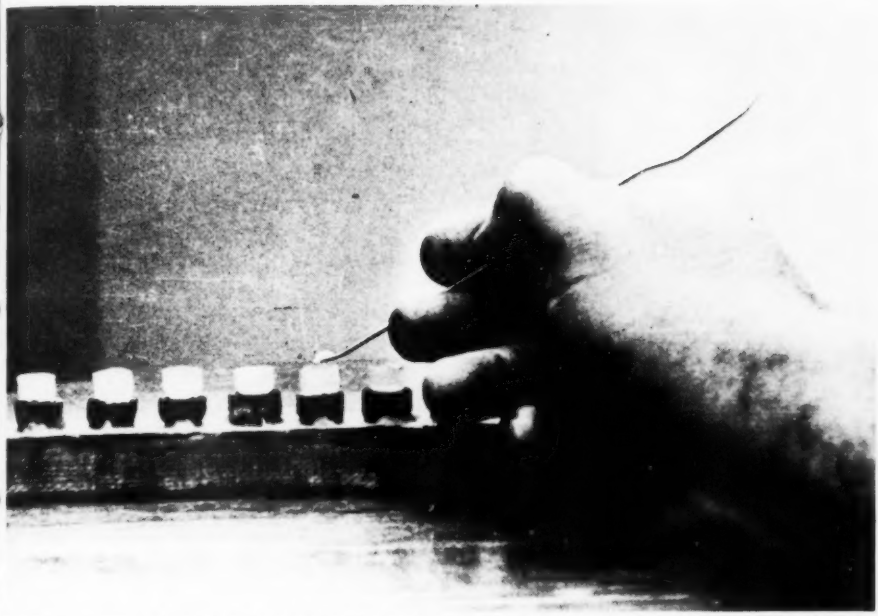


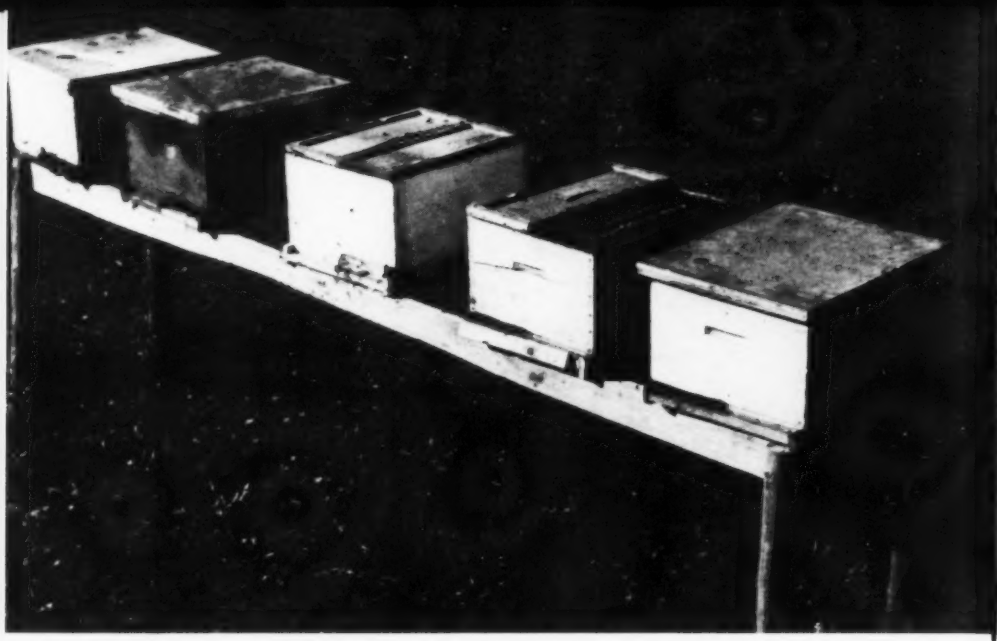
A small amount of royal jelly is placed in each wax cell before a young larva is grafted into it.

With the breeding queen selected and a colony ready to receive the grafted cells, I hope for a clear warm day to graft, to transfer the larvae from the brood comb to the prepared wax cell cups. From an unsealed queen cell I take enough royal jelly to prime each of the cells before grafting. Using the jelly spoon, a small amount of royal jelly about one-half the size of a pea seed is put in each wax cell. Besides being a cushion for the tender larva this provides food for a few hours until the nurse bees take over.

A frame is selected from the breeding colony with the very smallest larvae that can be seen. Then using the grafting needle I carefully scoop up the smallest larva that I can see and place it on the jelly in the prepared wax cell. This looks hard at first but with a little practice it can be done quite fast. Speed is essential while grafting as the young larvae soon dry out or are chilled in the open air. This frame with 10 or 20 cells is put in the cell starting colony. Small batches of queen cells can be left in a starting colony until they are ripe or ready to be put in the mating boxes. However, it is better to remove the accepted cells after 24 hours from the starting colony and place them in a cell finishing colony. This is a very strong normal working colony with its queen and brood below and separated from the supers by a queen excluder. It should have at least two full depth extracting supers above the excluder and be fed if no honey is coming in. In the top super I put two frames of unsealed larvae to attract the nurse bees and put the cell bar frame with the started cells between these.

I try to select larvae about 24 hours old when grafting and remove the finished or ripe queen cells 10 days from the day I graft. This is very important as they will hatch on the 12th day and should an older larva be grafted, that virgin could hatch on the 11th day and destroy the others.

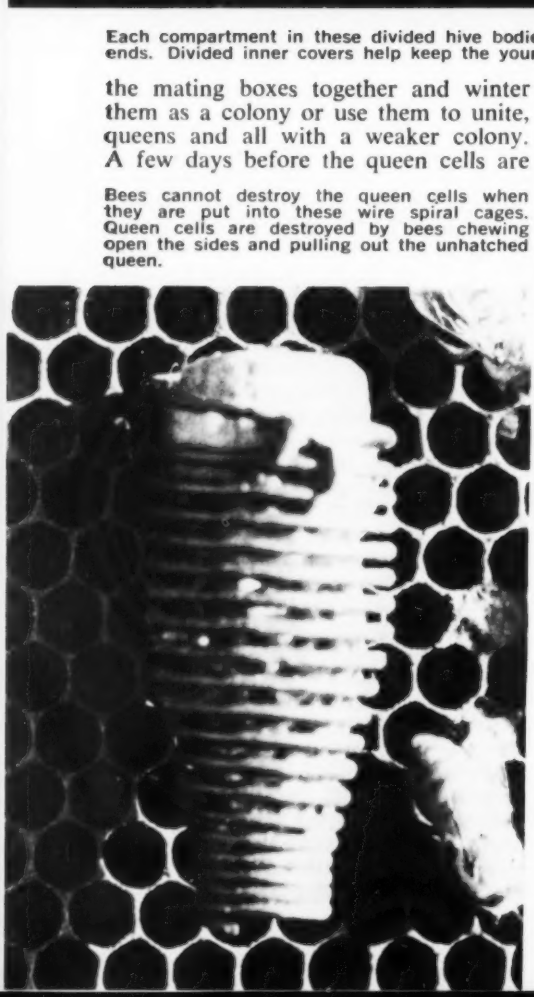
After trying all sizes of queen mating hives, I have found that a regular 10 frame hive body divided in two compartments is the best for home use. This size with standard brood frames requires less attention and can be stocked with brood and bees from regular hives. Also they don't get crowded and jammed up with honey like the smaller sizes. In the fall after the last queens are removed I either put the bees from



Each compartment in these divided hive bodies holds five frames with entrances on opposite ends. Divided inner covers help keep the young queens separate in these mating boxes.

the mating boxes together and winter them as a colony or use them to unite, queens and all with a weaker colony. A few days before the queen cells are due to hatch in the cell finishing hive, the mating boxes are stocked with at least one frame of brood and enough bees to cover it and another. These are brought in from an outyard and there is no loss of bees by drifting. On the 10th day from grafting the queen cells are put in the mating boxes. Each one is placed in a little coiled wire cage called a spiral cell protector. This prevents the queen cell from being torn down and the virgin killed before she is ready to hatch. Quite often this happens when the laying queen is removed just before a ripe cell is given. Also I think there is less damage to the cells by handling them; sometimes (keeping them warm) I take them to outyards for requeening. If there are more ripe cells than are needed I put each one in a separate nursery cage to hatch and the virgin can be used later. Virgin queens more than a day old are very hard to introduce especially to a full colony. The young queens in the mating boxes will usually start to lay when 10 days old. It is very strange to find that the virgins hatched from cells in the same lot when placed into full colonies will not lay before the 16th day. The graft for the next batch of cells can be timed so that the queens in the mating boxes will lay for two or three days; this will

Bees cannot destroy the queen cells when they are put into these wire spiral cages. Queen cells are destroyed by bees chewing open the sides and pulling out the unhatched queen.



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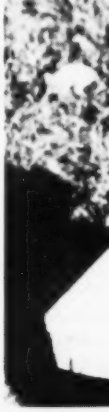


supply enough brood to keep the bees in the mating boxes normal.

At times the introduction of laying queens is a difficult task and very hard to follow a standard pattern with 100 percent safe introduction. Under some conditions with a steady honey flow on or with a large amount of young bees in the hive, introduction will be successful with most any method and perhaps a week later with different conditions nearly 50 percent of the new queens will be lost by using the same method. I have found some factors that do help and can be used throughout the season such as removing all attendant worker bees from the queen cage and not allowing the new queen to be released sooner than 24 hours by removing the candy or cardboard cover on the queen cage.

When the young queen settles down and starts to lay, she will begin to look and act more like a queen. Even the attitude of the bees is changed when they start to feed and caress her. Soon after this, the young queens are taken from the mating boxes to be used in full colonies or wherever needed. Just as they are picked up to be put into the cages I like to clip the wings on one side of the young queen and also paint the thorax of each with white lacquer. The left wings are clipped on the odd years and the right wings on the even years. This comes in handy when requeening later on and I am trying to determine the age of a queen. When I started marking queens and keeping records, I discovered there was a lot more supersedure in most colonies than I would have believed. Some strains have a habit of superseding their queens quite often and at any time of the season. This leads to many queenless colonies. However, in the colonies that have the best honey gathering records, the majority of their queens will maintain a good brood nest for two full seasons, while a few will still be good for the third year.

With 10 to 20 mating boxes I am usually able to use the young queens as fast as they are ready. But the times when they could not be used led me to make a queen storage box as a sort of a reservoir to keep the queens in until they were needed. This is also very convenient when buying queens early in the season and the weather turns bad. It can be carried to the outyards where the queens are used as needed. Young laying queens can be stored for three months or more and still be in perfect laying condition when released. It is very essential that all attendant worker bees be released and the queen be alone

(Continued on page 383)

The queen storage box is a three frame nuc box with one or two special frames to hold 30 queen cages each. Note the spacer blocks that keep the queen cages tight together so that the bees cannot release the queens by eating out the candy.

Safe Queen Introduction

C. J. KOOVER
Altadena, Calif.

A CALIFORNIA commercial beekeeper has come up with a method of introducing queens which is simplicity itself and 100 percent sure. It's so simple that one asks himself, why didn't I think of that?

Here is how it works. When his replacement queen arrives he forces a thumbtack into the candy opening of the cage. This prevents the bees from eating out the candy and releasing the queen. Next he pulls the cork out of the other opening and twists a piece of embedding wire around the cork. Then he reinserts the cork and he is ready to introduce the queen and her attendants to the bees in the hive.

After removing the old queen he clamps the mailing cage containing the new queen, wire side down between the top bars of two frames of brood. Having done this he feeds the length of embedding wire out between the brood chamber and the inner cover or hive cover.

A week later when the queen has recovered from her travels and has acquired status he pulls the cork out of the mailing cage from the outside of the hive. Not only is the new queen introduced but her attendants are accepted as well for they have acquired the colony odor after this length of time.

All there remains to be done is to check the hive after another week, when the queen is found to be laying by the presence of eggs. The mailing cage is removed at this time and the two frames are shoved together again. That's all there is to it. He claims 100 percent acceptance every single time for the simple reason that the queen is not released until she has acquired status.

When the releasing of the new queen is left up to the bees there is always the chance that they release her too early if the candy in the mailing cage is too soft or has been eaten away considerably by the attendants. Then again the queen may be confined longer than is necessary due to the bees not chewing away the cardboard covering the candy opening. His method alleviates the uncertainty. The success of this method depends not only on allowing the queen to acquire status but also on releasing her without creating a disturbance which prevents any hostile action by the bees towards their new queen.

His method could be refined by those wanting to make doubly sure by releasing the attendants although he claims this to be unnecessary. This could be accomplished by clamping a piece of excluder zinc over the opening from which the cork has been removed. When the cage is set on end the attendants will quickly work their way out through the excluder zinc and the cork with the wire twisted around it will be ready for reinsertion. If the cork is put in sideways instead of closing off the opening solidly it will be easier to pull out when the time comes to do that.

To large-scale operators this method should appeal for it does away with non-acceptance which is costly and time consuming to say the least.

It's An Idea

W. W. MAXWELL, M.D.,
San Antonio, Texas

SEVERAL YEARS AGO, Mr. J. E. Hastings of Birch Hills, Saskatchewan, Canada, a queen bee breeder, told me about his sure method of having the caged-queen accepted by the colony. When he kills the old queen, he smears her body over the wire of the new queen's cage, thus giving her the old queen's substance. It worked for me too.

It Ain't Good Business

GEORGE I. ZETLER
Duke Center, Pa.

THE SEASON of 1960 was the first time in years that the supply of comb honey exceeded the demand. The grocers' shelves were piled high with it all season. Farming in this part of the country is negligible, and as a result, most honey is produced from wild flowers and roadside clover. This honey has a tendency to crystallize rather early and any combs I have left on the grocer's shelf are removed not later than the middle of February. Some honey is crystallizing then and the customer who gets it is no longer a customer for comb honey. I service the shelf in the stores every two weeks and about the first of March each manager greets me with, "How about some comb honey?" My stock answer is, "As soon as the bees make it." One producer felt that as long as the market was flooded he would keep his until late in the winter and then it would move faster at a better price.

Friday is the big shopping day in this area so I get around early and fill my allotted space. Entering the store on the 17th of March, the manager met me with a grin from ear to ear, led me back to the counter and there neatly stacked were ten dozen sections. Good naturedly he informed me that if I could not supply him with comb honey someone else would and did.

Two weeks later I entered the store, went to the honey counter and, it was empty of comb honey. I congratulated the manager on disposing of that amount of comb honey in that space of time. Not saying a word he led me back to the stock room and there in a drum was the comb honey. He informed me that the honey sold like hot cakes the first two days and then it commenced to come back. Some of the customers took it good naturedly, others accused him of trying to sell them waxed sugar. Most of the honey he had sold was back in the store in a week, the cash register working in reverse. He told me he was so glad to get that honey that he had not asked the man he bought it from, who he was or where he was from. So he had no comeback and was out what he had paid for the honey and would charge it up to experience, a dear teacher, but one that delivered the goods.

Bees Lose At The Alamo

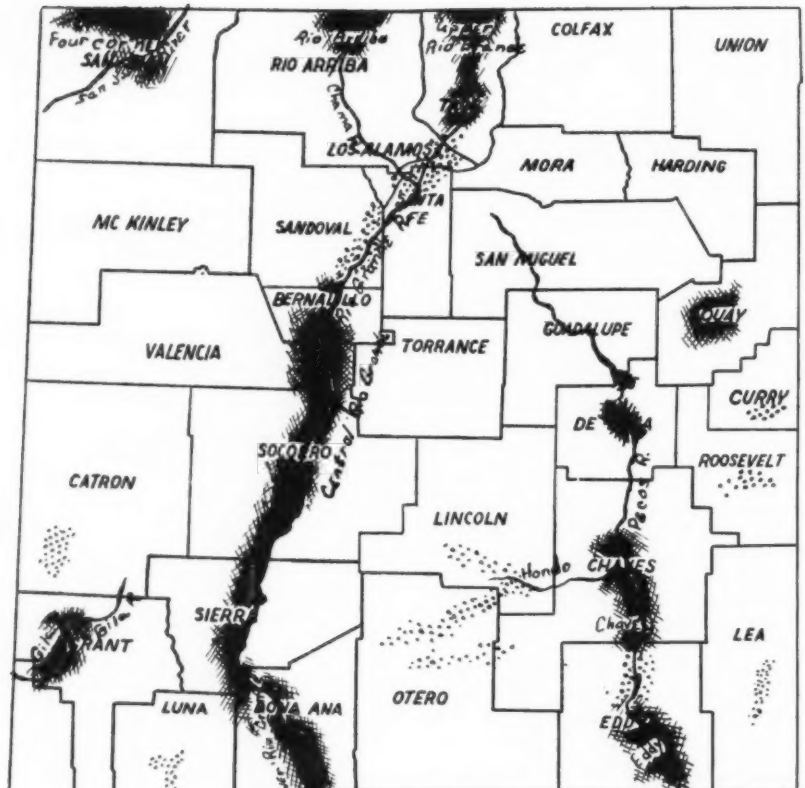
A NEW BATTLE at the Alamo, featuring bees and flowers, was recently fought at the Alamo and the forces of the bees and the flowers appeared to have lost.

Cause of the clash was a dispute between Grounds Superintendent (and beekeeper) Herbert Newcomer and the Alamo flower committee. Newcomer, head gardener at the mission since 1945, has kept a number of beehives scattered discreetly among the many handsome flowering shrubs on the Alamo grounds. No one has ever complained about the bees. . . . probably because of the excellent camouflage most visitors never were aware of the presence of an apiary in the Alamo Gardens. Now the bees have been removed by the new administrators of the Alamo. As a result, Mr. Newcomer is resigning, because, as he stated, the ladies are trying to destroy his work.

The 67-year-old co-author of a book called, GARDENING IN SOUTH TEXAS, charged that his staff had been cut and that he has not been authorized to plant anything since January. Newcomer had developed the Alamo grounds from virtually nothing into the most varied horticultural display in Texas. He has produced more than 250 kinds of plants in the Alamo Gardens which he refers to as the "kind of flower beds you expect around an old structure like the Alamo".

Over the years Mr. Newcomer has harvested unusually good crops of hon-

(Continued on page 379)



Beekeeping In New Mexico

MISS JOYCE GRIFFITH
Caballo, New Mexico

IN THE NORTHWEST corner of the state along the San Juan and Chama River valleys among high mesas and deep canyons sculptured by the wind lies one of the major honey producing areas of the state. In the south along the Gila River is an important area as shown on the map. From Taos County

Experts claim that within the next decade there will be a population movement to the Southwest, so if you are contemplating moving there, here is the dope on New Mexico beekeeping.

southward to Bernalillo County the number of colonies diminishes and again begins to increase from Bernalillo County southward becoming one of the most important areas in Valencia, Socorro and Dona Ana Counties. If the water table continues to lower, the high production rate of these counties may suffer a slight drop. In De Baca and Quay Counties and along the Pecos River in Chaves and Eddy Counties are found other important areas.

There are 268 registered beekeepers in the state. Less than two percent of these beekeepers have over 500 colonies; less than four percent have over 250 colonies and less than six percent have over 100 colonies. Nine percent of the beekeepers have over 50 colonies and 15 percent have over 25 colonies. Less than two percent of the beekeepers make a living exclusively by the production of honey.

The total number of colonies in the state is around 10,000. In 1959 these colonies produced 704,000 pounds of honey, which is about a 64 pound average per colony; in 1960 approximately the same number of colonies produced 528,000 pounds which is around a 48 pound average per colony. The 1960 total yield was approximately one-fourth less than the 1959 yield and about one-half the 1958 total yield.

In 1958, 207 colonies of European foulbrood were reported; in 1959, 176 diseased colonies were reported, and in 1960 the decrease of diseased colonies was much greater. Eighty-seven colonies of American foulbrood were found in 1958; 65 in 1959 and less in 1960. While a few beekeepers destroy diseased colonies most choose to treat diseased colonies. Sulfathiazole is the drug most widely used to treat and prevent disease.

From the different regions and varied seasons of numerous honey plants many nectars are collected in a wide array of locations.

From the four corners, Chama, and upper Rio Grande areas, and in Lincoln, Otero, Catron Counties comes the major proportion of clover honey. The clover starts producing nectar in early summer and continues until frost. These areas are the principal fruit pollination districts. These areas along with Chaves, Eddy, De Baca, and lower Rio Grande constitute the main alfalfa honey production areas. Although some alfalfa honey is produced in Gila, central Rio Grande and eastern areas the quantity doesn't compare with that of the former areas.

Another plant which is a top contending plant is the aster. Several species are found throughout the state. The most common aster is the Frostweed. It produces its most abundant amount of nectar in the southern part of the state with a honey flow starting in early September and continuing until frost. If the plants are fully matured by frost, they will not deteriorate from frostbite and continue producing pollen and nectar on early moist mornings until the last days of November. The honey is a light amber and when first removed from the hive has a strong odor which leaves after the honey remains in the open air a few hours.

Perhaps the most abundant producer in the state is the tamarisk family of which there are several species in the lower and central Rio Grande and Pecos River valleys. Its bitter amber honey, used principally by baking concerns, may be gathered as early as the first of May continuing until late summer. In the hottest weeks of the summer the honey flow will be only during early morning and late afternoon.

Long staple cotton has become one of the most prominent honey plants in Luna County, lower Rio Grande, Chaves, Eddy, and other eastern areas. The heaviest honey flow occurs during the period from the second week in July and the first of September.

Mesquite, a native shrub which produces a little honey each year is an excellent producer in Sierra, Dona Ana, and Luna Counties every three or four

Mr. Griffith and Mr. Freeman show frames of capped honey. The brush behind Mr. Freeman is mesquite.

years. It starts blooming in April finishing by the middle of July. Honey from the early blossom is very light amber and deliciously mild flavored. As the blossom matures the honey becomes a medium amber and stronger in flavor.

Catclaw and spanish rose shrubs are up coming producers in Socorro, Sierra, and Luna Counties.

Other plants which produce some honey in certain areas are yucca, sage or smoke brush as it is often called, milkweed found principally in central Rio Grande and eastern areas, rabbit brush, and goldenrod which produces more pollen than nectar.

Greasewood and the willow tree supply the largest proportion of pollen. The willows produce a small amount of nectar, but are valued mostly for their heavy production of pollen which may be gathered as early as the first of March in the southern half of the state; the date being some later in northern areas. Some pollen may be gathered as late as the last weeks of August.

Greasewood, the other prominent pollen producer, puts the first blossoms on in May and will yield large amounts of pollen after any light rain until the first of November.

A look at this variety of plants, and their seasons and locale allows sufficient room for a wide opinion on the races of bees.

With the wide number of beekeeping areas, the varied climatic conditions and the numerous physical features of the different areas comes almost as many ideas of the perfect honeybee as there are beekeepers. If you were to ask a beekeeper what races of bees served him best his answer would be an almost infallible guide to the location of his apiaries. An apiarist from the four corners, Chama River, or upper Rio Grande areas would prefer the Caucasian bees, yet there is little interest in a pure race of bees. The most popular bee of these areas is a cross of Caucasian and Italian races. The factors which seem to make this cross most desirable are: first, the crosses will rear brood earlier in spring than Italian or native bees in the area, which means a stronger worker crew for fruit pollination; second, they will endure the swift changes of weather far better than any of the pure races, and third, the crosses are a longer range bee which will go a much greater distance in search of nectar than either of the pure races.

The apiarist from the central Rio Grande and Gila areas would favor the Italian bees, but would quickly indicate that his most productive bees are crosses from hybrid Italians and native bees. His reasons for these crosses are the need of a long range bee which will go several miles into the foothills for nectar and have calm hardy work habits. These crosses give him these qualities plus the strong Italian dislike of the wax moth which is a constant menace to his profit. In the lower Rio Grande and eastern areas the apiarists are in strong favor of pure Italian bees since they have little need for long range bees and their principal concern is a sturdy hardy worker to gather nectar of agricultural crops.

The apiarists of New Mexico use the same principal methods of caring for their colonies as other apiarists throughout the nation. The first warm days following the heart of winter, most often in late February and early March, are spent checking their colonies and

feeding those low on stores. With this early feeding most apiarists feed their colonies conditioners.

Each apiarist has his own special way of feeding and preference to conditioners. One of the most common materials used for feeding colonies is sugar syrup, which is sometimes fed by pouring it over empty combs or by individual colony feeders of various types. Many apiarists return some of the honey diluted with water by feeding it the same way as they do the syrup. The most widely used pollen substitutes are soybean flour, corn meal, and whole wheat flour. These meals may be fed individually, but they are more often mixed together in various proportions to honey or dry milk with yeast added as a conditioner. This type of mixture is usually fed in patty form to each colony, but like the honey it may be diluted and fed in outside feeders prepared to feed the entire apiary.

Bees which have been properly prepared for the winter and checked in early spring, being fed if necessary, usually have plenty of brood in March and a strong worker crew when the early honey flows come in April. The owners are hoping they will need more supers soon. A common practice is to enlarge the entrance when the apiarists begin their first duty and requeen the colony if needed at this time. If the colony is not requeened in April or May it is generally best to wait until September. Most apiarists think it is to their advantage to requeen every colony from once a year to once every two years.

When requeening is over and the honey flows are underway the apiarists are kept as busy as their bees, moving colonies to better locations, supplying them with supers and ridding their apiaries of all the pests they can.

As honey flows come to a close the removing and storing of honey becomes a whirlwind process. All honey is taken above the average five pounds of honey per pound of bees which the colony needs for wintering. This percentage is higher in colder areas than in the southern part of the state.

Extra supers are stored, queen excluders removed, and the hive openings decreased in size. If the colonies are in damp valley areas ventilation openings are prepared to prevent mildew.

It is when the last touches for the winter are finished and both the apiaries and the apiarist are settled for the winter that charges are filed against intruders, thieves, and other enemies.

Among New Mexico's most destructive natural enemies are wax moths, ants, skunks and lizards. The most common is probably the wax moth and ants in second place. There are various species of these which prey on the honeybees and rob them of their savings.

The skunk is a quick-draw robber being most destructive in late fall, winter, and early spring. With his forearm he will claw out all comb honey and brood he can reach through the entrance of the hive. If this is not enough to satisfy his appetite he will thrust his tail through the hive entrance trapping all bees in his fur which attempt to drive the intruder away. He receives very few stings as only a few bees penetrate his thick fur and he has a honey-of-a-meal. The cost of this meal is often a colony of bees.

On a warm morning a lizard may be found lounging in front of a hive picking a choice worker breakfast. He is a costly pest during requeening seasons because it is most difficult for young queens to emerge and return from the mating flights without being picked up. For some unknown reason the bees never use their weapon on him unlesss he enters the hive.

Squirrels, mice, and birds inflict great losses on the production of the colonies. The mice and squirrels like skunks destroy both honey and bees. Birds seem to do most of their damage on wing catching worker bees while in flight.

The Worst Menace of All

If there were a court in which these murderers and robbers could be tried certainly some severe punishments would be administered. Yet while we begrudge these creatures the desire for a fine meal, relatively little is done to cope with the worst hazard of all, that of the insecticide sprays and dusts. It can be to the advantage of the beekeeper, as well as the farmer to use these insecticides wisely. The slightest neglect can make it the severest catastrophe in beekeeping.

CHECKING THE LARDER—Bees put in a plentiful supply of honey for a long winter but sometimes they starve if too much of their foodstuff is taken from them. Four of the children of Mr. and Mrs. Clarence Pemberton look over the hives in their back yard to make sure the bees will not go hungry during the frigid months. Making the inspection are (left to right) Barbara Kefuss, Catherine Pemberton, John Kefuss and Joel Kefuss.

A Family Adopts Bees

LESTER TOMPKINS
—Taken from The Canton Ohio Repository

"We thought they were kidding so we told them to go ahead."

MEMBERS OF THE Clarence Pemberton ,family of Canton, Ohio are intensely interested in bees, and they do not have to go outside their home to learn about the busy insects.

The Pembertons keep a colony of bees right in their living room!

A demonstration hive, which has two sides made of glass, allows the Pembertons to watch the bees go about their "nectareous" activities.

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"Both boys hope to attend college, and they expect to obtain most of the necessary money from their bee-raising business."

The bees buzz in and out of the Pemberton home by way of a funnel from the hive to the base of a window.

This hive-funnel contraption is indicative of the whole-hearted manner in which the Pembertons have gone into the bee-raising "business".

Four of the Pemberton children are students at McKinley High School. These are John Kefuss, 17, a senior; twins Joel and Barbara Kefuss, 15, sophomores, and Catherine Pemberton, 14, a freshman.

The fifth child is Loren Pemberton, 7, a second-grader at Horace Mann School.

Most deeply involved are the two Kefuss boys. Joel, despite his youth, is president of the Stark County Beekeepers' Association. John has become so enthusiastic that he plans to become an entomologist.

The Pemberton family practically stumbled into the bee-raising business two years ago when John and Joel happened upon a hive of "honey-makers" while attending a Boy Scout camp near Robertsville.

On returning home from the camp, the two youngsters asked their parents if they could keep some bees.

"We thought they were just kidding, so we told them to go ahead." Mrs. Pemberton recalls.

The boys went to work building a hive and then bought some bees. Now,

NO PRIVACY — The activities of bees in this hive can be observed at any time. The demonstration hive has two glass sides and usually is located in the living room of the Clarence Pemberton home. However, Mrs. Pemberton took it to McKinley High School recently when she talked to several classes there. Here she explains the home life of the bee colony to Shirley Anders (left) and James Umbaugh, members of the McKinley freshman class.

the Pembertons have eight regular hives in their back yard, plus the demonstration hive in the living room.

At first, Mr. and Mrs. Pemberton were not too keen on the beekeeping idea. But they soon became nearly as interested as John and Joel. The other three children in the family also pitch in and share the chores involved in raising bees.

John and Joel turned their knowledge of bees to advantage last winter by entering a "queen rearing" project in the science fair at Memorial Auditorium. They won high honors in that show and also in regional science competition at Kent State University.

Both boys hope to attend college, and they expect to obtain most of the necessary money from their bee-raising business.

The bee venture provided a portion of the funds for John and Joel to attend the National Boy Scout Jamboree in Colorado last summer.

Not only do the boys make money by selling honey but they also answer calls from people bothered by bees swarming in undesirable places.

The Pemberton family has acquired most of the paraphernalia connected with the beekeeping business. They own gloves, veils, smoking and extracting equipment — in addition to the hives.

John and Joel also have obtained virtually every bit of literature available about bee raising. The two boys, plus Mr. and Mrs. Pemberton, attended a special beekeeping course sponsored by Ohio Power Co. in Canton recently.

The girls in the Pemberton family have taken advantage of the bee business to concoct some out-standing recipes.

"Catherine makes some of the best cookies you would ever want to taste," according to Mrs. Pemberton.

Mrs. Pemberton has become the "publicity agent" of the family. She gives talks about bees at schools and to other interested groups. Recently, she gave a series of talks to McKinley High School classes, and the Pembertons' demonstration hive was displayed all week at the school.

The beekeeping project has helped to maintain a high degree of family harmony at the Pemberton home, according to Mrs. Pemberton.

"In most families, when the children reach high school they begin to pull away from their parents, but in our home we all work together in the bee business and it provides a common interest," Mrs. Pemberton says.

The Pemberton home is always abuzz with activity. Even when Mr. and Mrs. Pemberton and the five children are "dormant," the bees in the living room keep things humming.

Joel Kefus, despite his youth, was elected president of the Stark County Beekeepers' Association. Here he is pictured with Homer Dougherty, vice president; and Gene Messerly, secretary-treasurer of the association.

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Members of the Natal and Zululand Beekeepers' Association pose for a picture during their annual field day meeting.

A Very Active Beekeepers' Association

NEIL GOODWIN
Natal, South Africa

ALTHOUGH THE Natal and Zululand Beekeepers' Association has been in existence for the past 60 years, never have we had such an active Association as exists today.

It is worthy of note that less than five years ago, Committe members were asked to make a small contribution to the Association in order to keep things going. The membership then was in the region of 40 — today we have 200. This sudden increase of members is attributable to a number of factors, the main being the unstinted energy which our Chairman, Mr. Victor Gray and the Secretary, Mr. Noel Kearsley and their Committee, put into the Association's activities.

A little over a year ago, the late John Peel suggested that we should adopt Gleanings as our monthly magazine, as he had found that conditions in certain parts of the United States were much on a par with our climatic conditions here in Natal and Zululand. His suggestion was adopted. Now, we simply cannot wait for the monthly consignments. News of this magazine spread and so did our membership.

For other Associations who may be interested, this is how our Secretary went about raising the funds for the project:-

Reputed firms were asked whether they would be prepared to advertise in our monthy newsletter. In no time, we had more than enough and the small fee charged, not only paid for the printing, but placed us in a financially sound position.

As the copies of Gleanings are received, they are posted, and the Secretary pops in his own newsletter, something which always contains bits and pieces of topical interest and usually

Mrs. Jean Damp, and Messrs. W. Vorster, N. J. Kearsley, and G. E. Mitchell, examine a comb of honey during the field meeting at the yard of G. E. Mitchell of Pinetown, So. Africa.

the first thing I read when the envelope arrives.

Throughout the year, field days are held when members, their wives and friends, can get together and discuss bees. I have found that one learns far more from these field days than from all that is read in books. After demonstrations, talks and a hearty "bring your own lunch", the day is rounded off with a film and then home with fresh ideas and added zest for better beekeeping. It is amazing what new life is put into one of these occasions, I am sure all beekeepers will agree.

The big day of my beekeeping was the occasion on which I won a novice prize on the Royal Agricultural Show in Pietermaritzburg, Natal. This is a yearly event in Natal and a time when exhibitors from all over South Africa are able to show their prowess. The honey section is always an attraction at this exhibition and is held in June, at a time when the honey flow is probably at its best, for we have the saligna gum in these parts and, in my opinion, this produces the best honey one can find.

Two "Kingpins" in the Natal and Zululand Beekeepers' Association. Vic Gray, chairman and Noel Kearsley, secretary.

Here, not only do we find the good honey, but it affords an opportunity for those who are more useful with their hands to show their skill. We have had exhibited precision-made radial extractors, beehives from local timber, and other ingenious gadgets useful in the bee world. For the layman members of the Association are always on hand to tell of the wonders and enjoyment of this business and hobby. It is not always the children who stand around the glass case of the observation hive for hours at a time in search of the elusive queen, until asked to move on!

This year we hope to have our own "Honey Queen", something quite out of the ordinary I think, for Associations in this part of the world. We are all hoping that the venture will prove successful.

If a Swarm Hangs High

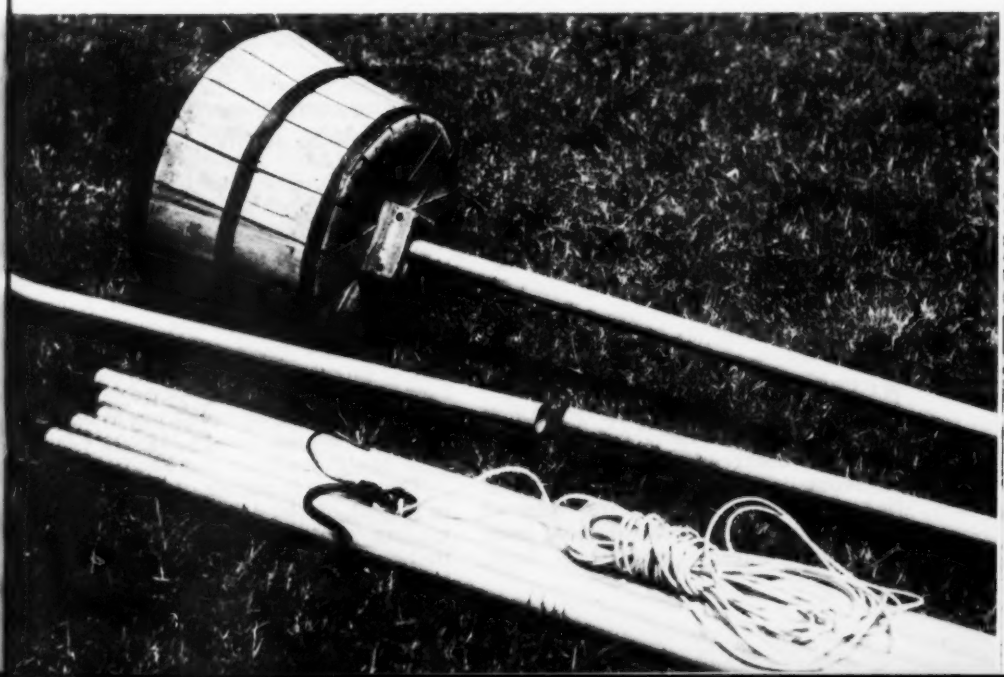
PAUL S. GRIERSON
Millburn, N. J.

IN THE MARCH '60 issue of Gleanings, Page 145, Mr. Scott tells how he got his swarm from a high tree. In Oregon where the trees grow high, of course, shoot them down, but here in New Jersey we seldom ever hear of such high swarms. In fact, over the years that we have done much of the bee work for the City of Newark most swarms are not over 30 feet up. Anyway, shooting them down is hardly the thing to do.

The equipment shown has been developed to meet any situation that may arise. In a few cases the police are called to control traffic while we do the work. Our highest swarm collected in the basket shown is 43 feet. We find that eight five-foot lengths of tubing is all we can readily use on a four pound swarm. The tubing is of aluminum and is that used for television aerial supports. The cord is first run up, using the tubing to hold the small hook. The large hook is caught on the limb. When ready to shake, the basket is held underneath the swarm and most of the bees are soon in the basket. To persuade them to stay put, hot wax has been brushed on the inside of the basket.

A number of innovations may occur to a user of this equipment, such as blowing smoke up the tubing when the limb is too large to shake and having a bee brush to fit into the end of the tube to gently brush bees off a large limb.

In the basket shown the construction is so sturdy that a swarm can often be brushed off a limb by rubbing the basket along the limb.



An outyard during a Fireweed honey flow.

Securing a Crop of Fireweed Honey

"I had over 250 colonies in the home yard and extracted as fast as the combs were sealed, and returned the empty combs to the hive to give the bees more room."

CHARLES BURKE
Hoquiam, Wash.

AFTER KEEPING BEES in Northern Idaho for several years, I realized the season there is too short to make a success of beekeeping. In 1922 I traveled about 6,000 miles in five states to find a suitable location for bees. I found many, only to learn there were beekeepers already established there. Later, however, I purchased a home with bees of a small beekeeper in Southwest Washington, Grays Harbor County, a few miles from the Pacific ocean.

There were hundreds of acres of newly logged off land, and they were still logging what is known as old growth timber, fir, spruce and cedar, two to

eight feet on the stump and 200 feet high or more. With the old logging equipment used in 1922 and the price of wood products, only one-fourth of what it was in 1960, there was a great deal of waste consequently leaving a heavy slash. There wasn't much forest fire protection in those days and less control, so large areas burned, making a deep bed of ashes, an ideal soil for the fireweed. There is much fireweed in the area and each plant has hundred of seeds that when ripe, have a cotton like attachment, that serves as a sail for the wind to carry some distance. So a burned area is soon seeded.

The plants in this area grew from four to six feet tall and one could see the nectar in the bloom. At times a bee would visit only six or eight blossoms to get a load of nectar. This bloom would last from June 15 to August 15 and it bloomed for about six years. The first three years it was common for colonies to make four to five hundred pounds of surplus honey a season. Then the following three years in acres of bloom, there wasn't a bee working on it, presumably because there wasn't any nectar there.

I had over 250 colonies in the home yard and extracted as fast as the combs were sealed, and returned the empty combs to the hive to give them more room. There were no natural swarms and I made increase by making five nucs of a strong colony in June and they would build up strong for winter.

During the past 10 or 15 years that has all changed. Wood products are much more expensive and the logging equipment all modern. All there is left on the cut-over area now is the short stumps. The timber companies usually replant tree seed or young seedlings and with rigid forest fire control there are not many burned areas. With a light ash bed the fireweed plants are small and there is not much nectar in them, especially in the low elevations.

The past seven years I have worked as State Apiary Inspector and contact commercial beekeepers that move their bees to the mountains where the fireweed has come up in new burned areas and at times they secure a pretty good crop of fireweed honey. It is water white with a heavy body and mild excellent flavor. The fireweed honey does not seem to candy very readily.

I only have time to take care of a few colonies now and a good colony will only make about 100 pounds of surplus in a season. I run them mostly for extracted honey and by giving the queen plenty of room in the brood chamber there is no natural swarming. One cannot expect a crop of honey and have the bees swarm when they build up strong.

Swarm Prevention

JAMES H. RAND
Rush City, Minn.

DURING MY beekeeping experience; in common with many others; I have run into a lot of grief with swarming. There has been a lot written about two-queen colonies also.

I grew tired of climbing tall trees or just watching my dear little playmates go AWOL over the hills. So I decided to try SOMETHING to change their minds. For two summers I did the following:

Every eight days I went over the colonies to see if there were any queen cells started. They were in one story hives.

Upon finding such, I would pick up hive and all and move it directly back of the old stand, and face it in the opposite direction, then I placed a hive exactly where the old one stood, containing empty combs or even comb foundation. I removed one frame from the center.

Then I opened the old hive and found the old queen. I cut out or destroyed any cells on this frame and put it in the center of the empty hive, on the old stand. The field bees from the old hive naturally went back to the old location with their old queen and started working there like a new swarm.

After a time, the old hive was turned around to face the same as the new one; but still behind the new one,—this

(Continued on page 379)

The Captain Turned Red

CARL E. KILLION
Chief Apiary Inspector
Paris, Illinois

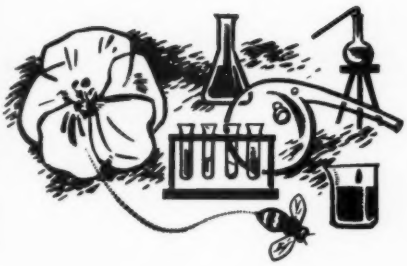
IT WAS LATE in March in 1943 when I checked the mail at the post office and received a letter from a small town, about people there complaining about bees. From the letter the bees must have had their first flight in weeks and were spotting up the neighborhood. The letter suggested that I either come myself or send one of my deputy inspectors.

Checking the location on the map I discovered the town was only about six miles from Scott Air Force Base at Belleville, Illinois. The inspection season was not open and I was the only one available to make the trip. I really wanted to make the trip because my son Gene was stationed at Scott Field. I could make the inspection and see Gene on the same trip.

The complaint about the bees was all settled and everyone was happy. I had a choice of either stopping at the Field in my work clothes or go on into the Belleville hotel and visit Gene the next day. I decided to stop at Scott Field in my tan work clothes. At the reception center they called Gene and in less time than it takes to write it, Gene and his buddy were there to see Dad. They were interested in seeing a certain movie and wanted Dad to join them. We had just entered the lobby of the little movie when an officer stepped directly in front of me and said, "What on earth are you doing? You know good and well you are not dressed properly. Who gave you permission to dress in that manner?" I looked first one way and then another and a dozen Air Corps boys were all looking at me. I tried to turn away from the officer (at that moment I did not know his rank) but he stepped over in front of me and started in again. I was really embarrassed, my inspection clothes were new, neat and clean. I again started to step to one side and get this nosey officer behind me. He wouldn't have it that way, he stepped in front of me again and his voice was getting louder all the time. What the final outcome would have been is a wild guess, but Gene had moved in near enough to whisper "Dad, he thinks you are in the Service."

For once in this incident I really felt good, I could now defend myself. I straightened up, looked him squarely in the eye and said "Sir, I am not in the Service, I am not a soldier, these are my work clothes. I am sorry but I didn't have time to change before coming on the Field to visit my son." If a bomb had exploded it would not have made any greater change over the officer's face. He stared at me for several seconds, his lips quivering but not uttering a sound. He started getting a reddish purple color from his neck to his forehead. Suddenly he whirled and out the lobby he went. When the soldiers were sure he was far enough away they really showed their enjoyment. One remarked "that was the most embarrassed Captain I ever saw, and we were all an eye witness to it." If those boys knew the truth I was perhaps the most embarrassed Apiary Inspector in the United States.

"BELIEVE ME, THE NEXT TIME FLETCH WRITES AN ARTICLE ON BEEKEEPING AND MARKETING HONEY, I'M GONNA READ IT!"



Research Review

DR. ROGER A. MORSE
Research Editor of Gleanings and Ass't. Prof. of Apiculture
Cornell University, Ithaca, N. Y.

New Methods of Killing Pest Insects:

CHEMICAL INSECTICIDES have allowed us to increase food production tremendously but they have also created many new problems. There appears to be an increasing awareness that chemical insecticides are not the final answer and that there are, in some cases, better ways to control insect pests. Several new ideas have been proposed and a few have been successful.

Sex Attractants:

In the case of the gypsy moth, since the females cannot fly, the males must seek the females for mating. It's been known for many years that the females secrete a material from the tip of the abdomen which attracts the male. This chemical has now been isolated, identified and synthesized. It is hoped that the sex attractant can be sprayed in wooded areas infested with gypsy moths and that the males will become so confused that they will be unable to find the females to mate with them. Field testing of the material will probably begin in several states this summer. If the tests prove successful, we might see an end to chemical airspray for gypsy moth which has caused some beekeepers much loss during the past few years in the northeastern states. The sex attractant is very safe to handle and is not toxic to insects.

Chemical Sterilants:

It is known that certain chemicals which may be fed to insects cause them to be sterile. Materials of this nature are still being laboratory tested and it will probably be several years before they can be used in the field.

Anti-Metabolites:

There are also chemicals which may be fed to insects which do not kill them immediately but which cause death several days or even weeks after they are fed. The chemical is fed by spraying it on foliage which the insects consume. Usually these materials weaken the insect so that it can be attacked by bacteria or viruses which then cause its death.

Control by Disease:

Many insects have serious diseases just as the honeybee has diseases such as American and European foulbrood. The Japanese beetle, which is a serious lawn and turf pest in the East, has been controlled in several areas by using bacteria. Whereas many bacteria are very specific and attack only certain insects, other bacteria will attack and cause the death of a wide range of insect pests.

Sterilization by Radiation:

The screw worm fly is an insect which annually caused about 20 million dollars damage to livestock in Florida and Georgia since it was introduced into the area in the early 1930's. It cost about $8,000,000 to eradicate this pest from the area. In the eradication program, screw worms were reared in large quantities and subjected to radiation which caused the adult flies to be sterile. Sterilized flies were released and they

(Continued on page 374)

Dr. Roger Morse, Gleanings Research Editor, appeared on Dave Garroway's TV program "Today" May 3rd. Here in Garraway's absence, John Daly quizzes Morse about the bees in the Honeybee Hobby Hive setting before them. The main subject of the interview was Morse's explanation of the honeybee communication dances.

Robby Johnson proudly watches the bees in his newly installed Honeybee Hobby Hive build comb. This new type observation hive will permit the observer to see what takes place when a colony of bees sets up housekeeping.

NEWS REEL

Retrieving swarms is easy when they cluster close to the ground such as this one did.

The tables were turned on Jack Happ, Managing Editor of Gleanings as he photographs a worker bee pollinating an apple blossom.

Editorials

Advantages in Hauling Bees from the South

YEARS AGO, practically all bees were shipped by express. Large piles of crated packages of bees, spaced far enough apart for ample ventilation enroute, usually three packages in a crate, were seen frequently on express trucks ready to be loaded on the train. At present quite a number of packages are shipped by parcel post.

Some commercial beekeepers in the North haul their bees from the South in large trucks. This means arranging their program in advance with the bee shipper. If the shipper knows when the truck is arriving he can have most of the packages ready for loading.

Packages have to be properly loaded to make the trip in good condition. If the proper amount of food is not in each cage the bees may run short. Also, the ventilation enroute must be adjusted to weather conditions. Sometimes the weather is quite hot in the South, yet the bees may reach their destination in the North during a snow storm. Trucks must be in first class condition and drivers must be experienced and reliable. Two drivers changing off periodically can usually make the trip from Alabama to North Dakota in about two or three days.

Some day, in the not too dim and distant future, bees will be hauled in quantity by plane. Small shipments are now sent by air. Some have visions of moving bees and equipment from the Northern to the Southern hemisphere and vise versa, every six months, in order to take advantage of a continuous honey flow. That would be working the bees overtime, not to mention the owners of the bees. All work and no play would make Jack a dull boy.

The Production of Rape Seed in Western Canada

THIS IS THE TITLE of a bulletin put out by Canada Department of Agriculture, Ottawa, Ontario. Space permits only a few facts from this publication.

A few hundred pounds of Argentine rape seed were imported into Saskatchewan, Canada, in 1942. In 1957 there were over 629,000 acres of rape. Rape lacks resistance to drouth and is adapted to clay and loam soils better than light sandy soils. No herbicides have been found that will control weeds in a crop of rape.

When sown on suitable soil yields of from 1200 to 1500 pounds per acre have been reported from the prairie regions. The seed bed should be firm to resist erosion. About seven to ten pounds per acre should be sown.

As mentioned in recent Gleanings' articles, bees store good crops of honey from rape in the prairie provinces of Western Canada. Beekeepers in the U. S. are interested in trying it out. Just how well it is adapted to areas south of Canada remains to be seen.

It Pays Beekeepers to Keep Neighbors Sweet

SOME PEOPLE ARE AFRAID of bees, at least they imagine they are, even though they may never have been stung. If these people could have a proper introduction to bees they would likely be intrigued with them and might end up owning a few hives.

People who keep bees, either in the country or in a town or city should make it a point to be friendly with neighbors. Whenever the opportunity presents itself the owners of the bees should try to acquaint the neighbors with the characteristics of honeybees and their value to our economy in producing honey and wax also in pollinating over 50 farm crops, including legumes, fruits and vegetables.

In the event that some neighbors raise some objection to the bees, a jar of honey presented at the proper time will usually improve the attitude of the neighbors and help to keep them sweet.

It is well to keep in mind the fact that beekeepers, especially those in heavily populated areas, should be careful to open or manipulate hives of bees on warm days when they are flying freely, bringing in nectar and pollen. Colonies of bees that are opened during cool weather when a large percentage of the bees are at home, naturally resent such improper handling and may cause some trouble, in which case the owner of the bees is to blame.

Don't Over-manipulate Bees

WE KNOW OF a few beekeepers who practice "let alone" beekeeping and seem to make out quite well. By that we mean that these beekeepers have apiaries some distance from home and make comparatively few visits to the outyards during the season.

One beekeeper lives in Ohio and has bees in Northern Michigan. He has a helper who assists him in putting packages in hives in the North that are stocked with combs of honey saved over from the previous season. He operates the colonies for section comb honey and puts on an ample amount of supers to hold the crop. He may visit his northern yards once or twice during the major honey flow but does not expend any unnecessary labor on his bees. Colonies started from packages in the spring, if given ample comb space, are not so likely to swarm as are over-wintered colonies.

Some years ago we learned of a commercial beekeeper in northwestern Ohio who was short of help. He operated a number of yards, including one yard run for section comb honey. He had an average of three or four comb honey supers ready to put on, so rather than put them on one or two at a time, he put them all on at one time. The season was favorable for securing a good crop, so most of the supers were well filled. He will never know how many swarms, if any, went to the woods but at least he saved considerable time and labor which might have been used checking the yard.

Now please don't misunderstand us. We are not advocating slipshod beekeeping, but we are saying that there is a possibility of over-manipulating colonies of bees, thus expending unnecessary labor that will reduce the margin of profit.

It is very necessary at the beginning of each season to "plan your work, then work your plan." When visiting outapiaries with one or more helpers, make sure you have everything needed on the truck, bee veils, smokers, hive tools, extra queens, smoker fuel, etc. It is well to have one person call off items that are needed and another person see that they are put onto the truck.

When visiting outyards never run trucks empty. Take along supers even though all of them may not be needed on that trip. Supers can be piled up mouse proof until they are needed. If each outapiary has a building in which equipment can be stored — so much the better.

Successful beekeeping has been defined as producing and marketing the maximum crop of honey at the minimum of expense. To accomplish this the beekeeper must have good bees, good locations, good equipment and intelligent apiary management which involves eliminating all unnecessary labor and expense.

Live and Learn

PROPOLIS PETE

HERE IS A LITTLE more on the subject of artificial pollen feeding. Last month I told of a few experiments that I had made, and which I hoped to confirm this year.

Well, when things opened up a bit, I put out some soy flour mixed in the proper proportions with yeast, and, up to the time that I wrote last month's installment, the bees had ignored it completely. The day after I sent in the copy, a couple of bees sampled it, and within three days they were swarming all over it. Some were even being smothered in it. Apparently they rolled in it and the flour was so fine that it clogged their breathing pores.

I also told you last month that I was going to see what my packages would do about it. There could be no question that they needed pollen, because they were being hived on six dry and empty combs, plus four frames of foundation. The reason I thought that they would be a good check on the other colonies, was because I thought that bees took artificial pollen only when they were desperately short. I still think so, because this year only some of the overwintered colonies worked it. I know, because I could tell by the arrival of flour-laden bees at the entrances, and in each case it seemed to be only the colonies that I suspected were short. If the weather ever lets up enough for me to take a good look, I'll know for sure. But do you know what? Not one of the three packages worked the artificial pollen.

They were starting to rear brood, a little, not much, and I figured that they must be bringing in some natural pollen. There was a little available from elm, pussy willow, and a small tree that I can't identify absolutely. Around here they call it box elder, but I don't know the botanical name, and can't find it in any of the books that I have. At any rate I never saw any pollen going into them from either the outside or from the flour. So I gave each of the three a cake made of flour and honey, mixed into a dough, and put on over the frames, under the inner cover. It's still there, with not even a tooth mark on it to show that they at least had tried it.

Can they rear brood without pollen? It seems to me that I have read somewhere, that they can support a few larvae from reserves carried in their own bodies. Maybe in a couple of days it will stop raining and warm up long enough for me to find out what is going on. Right now the colonies are still packed, with the winter entrances in place.

Speaking of the weather, which everybody is doing around here, this has been an exasperating spring so far. It isn't that the plants are so far behind, maybe a week or so, but it has been so miserably damp, rainy and cold, that the poor bees don't get a chance to go out and bring home what they need for this early season build-up. They have been working the flour when they could fly, as I said above, but a couple of days ago they quit as suddenly as they started, and nary a bee can be found even smelling it. I don't know why. Maybe the queens slowed down (or up) on their egg laying and the bees are getting enough in the few hours a day that they can work, to take care of all the brood.

If that is the case, it isn't a good sign for a big honey crop. I have to get my honey early to sell it to the summer people or I don't get it at all. There is a good crop usually of fall flowers, but the vacationers have gone home then, and besides the bees need that fall honey for their own use during the winter.

I have noticed in previous late springs, that even though the first flowers are very late, by the time the end of May comes around, nectar bearers are pretty much on time. If locust and clover and blackberry come in on time or close to it, and my bees haven't built up the population so that there are enough field bees to go out and get it, somebody is going to be awfully disappointed. I've got feeders on seven hives, and watching to see that nobody else runs out. That's about all I can do short of uniting the weaker sisters when the flow begins.

Let's Talk About HONEY PLANTS

DR. HARVEY B. LOVELL
University of Louisville,
Louisville, Ky.

Buckwheat. The flowers are white with eight large orange nectaries on the base of the sepals. There are no petals but the sepals are white and could easily be mistaken for petals. This is one of the easiest and best honey plants to plant for bees. The only objection to it is the dark, almost purple-black color of the honey. It has a heavy body but strong odor and flavor.

Cultivated fields of buckwheat have a long blooming period. Nectar is secreted in large quantities in the morning, but by 2 p.m. the flow has stopped for the day. Bees soon learn this and hang around the hives in the afternoon, often becoming very mean. Buckwheat is one of the most important honey plants in New York, Pennsylvania, Ohio and Ontario.

Indiana. D. G. Rutherford of Lafayette wrote that he moved 30 colonies to 60 acres of buckwheat in 1947 and stored a 200-pound average of buckwheat honey.

In spite of its dark color and strong taste, buckwheat honey is sold in the buckwheat belt at nearly average prices for table use. Many people in the area develop a taste for it and consider all other honeys insipid. Many million pounds are sold in New York City to the Hebrews for use on religious holidays.

Tennessee. Occasionally a surplus is made farther south. Leslie Little of Shelbyville sometimes produces an average of 60 to 75 pounds of buckwheat honey with a maximum yield of 200 pounds for strong colonies. Since there is very little demand for the honey in the South, he leaves most of it for winter stores.

Louisiana. Mr. Gayden Perkins of St. Francisville writes concerning rattan. "I have but a small amount of

Cultivated Buckwheat (**Fagopyrum esculentum**)

rattan honey at present but expect to have a goodly amount again this year. It's the honey I eat myself and I have found none that I prefer more.

"Honey I extracted in 1955 has not granulated; also I have a jar of chunk comb honey packaged in 1956 that has not granulated.

"In 1959 we had in this area perfect weather conditions that coincided perfectly with rattan bloom. During the middle ten days of this flow, the bees carried on little outside activity during the morning hours, even though white, crimson and Ball clover, plus other native plants were in full bloom.

"I examined rattan blooms during the mid-morning hours a number of times and could always see that the tiny flowers were full of a liquid. I presumed it to be nectar. Not a bee would be on the blossoms at this time and very little activity at the hive entrances.

"Along about midday they would start working on rattan and would continue working until darkness came.

"In 1960, weather conditions were bad during rattan bloom and I noticed that bees never visited the flowers while the temperature was below 80 degrees. I guess the reason for the 80°+ temperature and the after morning working by the bees could be due to the sugar content of the nectar being low at these times — I don't know for sure.

"During the 21 days the rattan was in bloom my hives stored about four 6¼-inch supers. My scale hive gained 12 pounds per day for four consecutive days, and 134 pounds for the 21 days.

"I get nice gains from basswood some years but usually peppervine blooms in the latter part of the flow and darkens it."

California. Seth C. Wallace of Buchanan's Honey, Glendale, writes me, "Normally there are nine kinds of honey in our stock. They are produced at different times of the year, perhaps hundreds of miles from each other. We stock wild sage, wild buckwheat, orange blossom, sweet clover, lima bean, cotton, alfalfa, Eucalyptus and star thistle."

I have before me a bottle of Buchanan's Eucalyptus. The honey is a medium amber with a distinctive flavor. They say "It blooms in February and is made from the variety of Eucalyptus known as bluegreen." A photograph of this gum appears in Pellett's Honey Plants p. 143, and in J. H. Lovell's Honey Plants p. 123. Different species of Eucalyptus bloom in different months, producing an almost continuous honey flow in some parts of California.

Rape. R. F. Maguire of Early Seed and Feed Company writes me, "The reponse to our ads of Argentine Rape has been terrific, and we have sent seed to every state in the U.S.A., including Hawaii and Alaska." He also sent me a clipping from a Canadian newspaper which states that the Canadians are making a spread similar to margarine from rape seeds. The price of rape seed has increased from $98 to $135 per metric ton due to increased demand for the seed.

Bees and Bears

HOWARD GRAFF
Snohomish, Wash.

HAVE READ with interest many articles on bears and bear fencing such as the one in your March issue of Gleanings.

We have had this problem in our Fireweed areas for many years and there is one little trick which we have used that will make the electric fence much more effective. Whenever we put up a new fence or move bees into an old yard that has a fence we always take a few pieces of bacon rind and go around and wipe the wires all the way around and then tie the pieces of rind to the fence good and tight with wire.

The bear's most vulnerable spot is his nose and mouth and when he smells the bacon grease on the wire he ether touches the wire with his nose or licks it with his tongue and gets the full effect before he has had a chance to crawl through the fence. We only use two No. 14 smooth wires, one about 14 inches from the ground and the other about 30 inches from the ground and have had very good control.

Honey ice

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Honey ice cream rings for that birthday party.—Photo courtesy of The Kellogg Co.

Happy Birthday Honey

MRS. BENJ. NIELSEN
Aurora, Nebraska

ISN'T IT FUN to plan a birthday party for small fry? They are so appreciative, so enthusiastic — dancing feet, sparkling eyes! Games out-of-doors, perhaps in the park, then home for refreshments and the fun of watching the honoree open the gayly wrapped gifts. And, by the way, these excitingly mysterious packages make a pretty centerpiece heaped in the center of the table.

Kiddies will adore these yummy cereal honey-way ice cream rings. Easy to make ahead of time, slip onto the plate at serving time, top with honey vanilla ice cream, then sprinkle with coarsely chopped peppermint candy or Honeyscotch Sauce and slip in a favor, as shown in the accompanying picture, or a bright colored lollipop.

Honey Ice Cream Rings

Two tablespoons honey, 2 tablespoons butter, ¼ pound marshmallows, ¼ cup crunchy peanut butter, ¼ teaspoon vanilla, 2 cups ready-to-eat high protein cereal and ¼ cup shredded coconut.

Combine honey, butter, marshmallows and peanut butter in medium-sized saucepan. Cook over low heat, stirring constantly until marshmallows are melted and mixture is smooth. Remove from heat; stir in vanilla. Add high protein cereal and coconut, stirring until well coated with syrup. Cool slightly. Shape by hand into thin rings about three inches in diameter. Let stand until cool. Just before serving, fill with ice cream. Yield: 10 rings, about three inches in diameter.

Honeyscotch Sauce

Combine 1 cup brown sugar, firmly packed, ⅓ cup honey, ¼ cup soft butter and ½ cup cream.

Cook over low heat, about five minutes, stirring to blend well. Yield: two cups.

A Survey of American Honeys

8. Effect of Storage on Honey Sugars [1/]

JONATHAN W. WHITE, JR.
Eastern Regional Research Laboratory
Eastern Utilization Research and Development Division
Agricultural Research Service, United States Department of Agriculture
Philadelphia 18, Pennsylvania

IT IS WELL KNOWN that honey will darken when it is stored for long periods of time. Milum at Illinois studied this some years ago and also included the effects of some processing variables on color development in storage. In the European literature on honey it was recorded by Auerbach and Bodlander that as honey was stored, its levulose/dextrose ratio increased. De Boer did not confirm this and said that in his experiments no changes took place in the sugars. He did note that other changes that occurred in storage of honey were similar to those that were brought about by heating of honey. By this he meant darkening, decrease in diastase and increase in hydroxymethylfurfural (HMF, a degradation product of sugars).

During our laboratory work on the complete analysis of 504 samples of American honeys from over the entire country, we had the opportunity to do some work on the effects of storage on the composition of honey.

By using cold storage at -4°F. for portions of honey samples when they were received, they could be held without further changes taking place in them. Then, at a suitable time, these samples and corresponding samples that had been stored at laboratory room temperature (73-82°F), were analyzed. Sugars, acids and diastase were determined, since these were the materials that might be expected to change in storage.

Changes in Sugars in Storage

Five unheated honey samples were each divided into three parts when received from their producers. As noted above, part was placed in cold storage and part stored at room temperature. The third part was heated at 130°F. for 30 minutes, cooled and stored at room temperature.

The samples were analyzed after 20-23 months storage. The differences among the sugars in the two room-temperature samples and the cold-storage sample were definite, but it was not clear whether any real differences were present between the heated and raw room-temperature-stored samples. The results were analyzed statistically[2/]. When raw or mildly heated (130°F., 30 min.) honey was stored for one and one-half to two years at a temperature ranging between 73° and 82°F., the following changes took place:

1. A decrease of the free dextrose averaging 13% of that present and a decrease in free levulose averaging 5.5%; an average of 18.5% of the free monosaccharide content of the honey was lost.
2. A large increase in "maltose" or reducing disaccharide content, averaging 68% of that originally present.
3. A slight though real increase in sucrose content.

1/ This is one in a series of articles describing a large-scale study of the composition of honeys from over the United States. Complete data interpretation and conclusions will appear in a forthcoming Department of Agriculture publication.

2/ All F values exceeded the critical value at the 1% probability level.

4. A small (13%) increase in higher sugars present.

5. An increase (averaging 22%) in the unanalysed material.

These changes are in the direction of increased complexity of sugars. They are probably brought about by two mechanisms - chemical and enzymatic. A high sugar concentration and a considerable acidity, both of which are present in honey, are known to promote a slow combination of simple sugars to more complex types of sugars. It is also thought that the enzymes in honey bring about slow increases in the amounts of more complex sugars.

Why Granulated Honey Softens or Liquefys in Time

The decrease in dextrose content on storage is about twice that for the levulose. It is large enough to have a real effect on the granulation tendency of honey.

It was proposed in an earlier article in this series that granulating tendency of honey can be predicted from the dextrose/water ratio: values of 1.70 or less are associated with non-granulating honey, while samples showing a ratio of 2.10 or more will granulate complete and hard. Since one and one-half to two years storage at ordinary temperatures can decrease dextrose content by 13% this will decrease the D/W ratio.

Portions of most samples were stored in the freezer at 20 degrees below zero, centigrade. Irene Kushnir selects samples for analysis in a storage study.—USDA photo by M. C. Audsley.

In the samples we analyzed, storage caused the ratio to decrease by an average of 0.25. Thus a honey of a moderate granulating tendency (D/W = 1.90) would in time become a non-granulating type (D/W = 1.65). Many beekeepers are familiar with the slow "melting" or liquefaction that takes place when a jar of granulated honey is stored for an extended time. This is brought about by the decrease in free dextrose, due to the causes noted above. This action brings the dextrose content in the liquid part of the honey below the amount needed for saturation. This then requires that enough of the granulated, solid dextrose dissolve to bring the concentration in the liquid part back to the saturation level.

This probably is one of the causes of partial liquefaction or excessive softening in finely granulated (Dyce-processed) honey spread when stored too long at room temperature before use. The most obvious way to prevent this is by reducing the storage temperature sufficiently to retard the loss of free dextrose. Ordinary refrigeration wi'l be sufficient for this purpose. It will retard both the chemical and enzymatic reactions involved.

Acidity of Honey Increases During Storage

A group of 10 honey samples were stored without heating, both in cold storage (-4°F.) and at room temperature. These were then analyzed for acidity after two years of such storage. None of the samples showed any visible signs of fermentation. Statistical analysis of the results showed that significant[3/] increases in free acidity, lactone and total acidity had taken place in the samples stored at room temperature. We have found a significant relationship between the rate of increase of acidity and enzyme activity in these honeys. This is further evidence that honey contains an enzyme that slowly produces acidity in honey.

(Next month: - Effect of storage on diastase content.)

3/ Exceeding the critical value at the 1% probability level.

A Rewarding Experience

ROY J. CADY
Grayling, Mich.

LAST SUMMER, while cutting pulp wood, I found a colony of bees in a large popple tree. As I can always use an extra hive of bees in my small apiary, I made quick preparations toward getting the bees in one of my hives.

I cut the tree rather late in the afternoon, but I found it would be dark before I could get the tree apart. The next day, using my power saw, I cut the top of the log loose and lifted it to one side.

I had one brood body full of old combs and one empty. I carefully lifted out the sealed and open brood and layed it on top of the frames inside the empty hive body. I watched for the queen, but not seeing her, I used a bunch of leaves to brush the bees onto a pan and dumped them in front of the hive.

I wore my bee veil, but with my shirt sleeves up to my elbows. I didn't get a sting. My children were within six feet of the hive all the time, with no bee veils and only summer dresses and they were not stung.

In less than 10 minutes, the hive entrance was black with bees going into the hive. Their queen was on some of the brood when I put it in the hive.

The next day, this colony was going strong, working the white sweet clover in the area. They did very well, filling two brood chambers with honey and pollen for winter.

A South American Tour

H. A. SCHAEFER
Osseo, Wisconsin

ON FEBRUARY 5, 1959, following the Federation's Tampa meeting, a group of 14, including the late Mr. Newman I. Lyle and Mr. and Mrs. H. A. Schaefer, departed by air from Houston, Texas, for a trip around South America, down the west coast returning up the east coast to Miami, Florida on March 20. Stop-overs were made at Mexico City, Guatemala, Panama City, Lima and Cusco, Peru; Santiago and Puerto Varas, Chile; Bariloche and Buenos Aires, Argentina; Montevideo, Uruguay; Rio de Janeiro, Brazil; and Port-of-Spain, Trinidad. Bariloche, where President Eisenhower visited recently was our farthermost stop beyond the equator, below 40° Lat. South, compares with Fort Wayne, Indiana, north of the equator, 40° Lat. North.

Coming from Missouri, Iowa, Wisconsin, North Dakota and Utah all in the group were interested in agriculture. Whenever possible, the group visited the U. S. Embassy's Agriculture Attache. Although the trip lasted nearly seven weeks, our time in each country was much too short and many points of interest were missed.

Of special interest, compared with travel in the U.S. EVERY HOTEL AND RESTAURANT WE VISITED SERVED HONEY. One hotel did not have honey on the menu but it was served when requested. One lady in our group, from North Dakota, had to have honey, her doctor's prescription!

The group visited the apiary of La Molina, National School of Agriculture, near Lima, Peru. Being vacation time, (their seasons are the reverse of ours) we did not see the beekeeping instructor. In downtown Lima a one pound bottle of honey cost 45 cents.

We Visit Santiago

In Santiago, Chile, we visited Sr. Robert O. Goldschneider, a manufacturer of sporting goods clothing, who was getting started in honey production with 300 colonies of bees. He had just had his bees moved to South Chile where he claimed the flows were better. He and some business acquaintances were sponsoring worthy boys in Agricultural projects something like the 4-H Clubs here. He was sponsoring a bee and honey project.

Nectar Sources in Chile

Lucerne (Alfalfa), Blackberry, Clovers, Cotton, Acacia or Locust, Sun Flowers, Ulna Tree and Vetch. There are some large operators, 2,000 to 4,000 colony units. Yields varied from 30 pounds in the North to 175 pounds in the South. Honey was offered in the stores at 60 cents for one and one-half pound jars. Honey candies and honey baked goods were prominently displayed. Most of their honey was exported.

In Buenos Aires, Argentina, Mrs. Schaefer and I had the pleasure of visiting the homes and honey houses of Sr. Geoghegan, operating 800 colonies, and Sr. A. F. Hernandez, operating 8,000 colonies. These gentlemen arranged for our transportation from our hotel to their homes and return. They lived 80 and 125 miles from Buenos Aires respectively, Sr. Geoghegan coming for us at our hotel and Sr. Hernandez returning us the same night.

At Sr. Geoghegan's home we found Sr. Hernandez waiting. We had 4 P.M. refreshments in the lovely flower garden, then a tour of his honey house

(Continued on page 376)

Kill Grass Around The Hives

Equipment needed for spraying Johnson grass and other grass pests.

A. B. KENNERLY
College Station, Texas

YOU CAN CONTROL grass around beehives, along fences, roads and ditches with sodium dalapon dissolved in water. It's an outstanding grass killer according to H. E. Rea, agronomist for the Texas Agricultural Experiment Station who has just completed some research with this chemical. Gardeners can also use it for killing nutgrass.

Some of the worst grasses such as Johnsongrass and Bermuda have been successfully controlled. Rea sprayed the areas with a quick-acting power spraygun controlled either by the driver of a pick-up truck or tractor, or by a man on foot. However, hand-sprayers will do the job on a smaller scale.

Dalapon is most destructive to grasses when applied to tender foliage, but is worthless for treating dormant or partially dormant vegetation. If you add sodium TCA, you can kill the top growth and also the roots. You will get a better kill of the roots if you're lucky enough to get a rain in a couple of weeks after you apply the TCA. Rains will wash the TCA down into the soil where it works on the roots.

Treating growth of Johnsongrass up to 10 inches tall calls for a mixture of 20 pounds of dalaphon in 100 gallons of water. Three or four applications at 10-day intervals, thoroughly saturating the grass, will usually eradicate the grass.

If you wait until the grass is above 10 inches high, use a 30-pound dalapon spray, or a mixture of 20 pounds of dalaphon and 40 pounds of TCA in 100 gallons of water. You can increase the effectiveness of TCA by adding two pounds of a dry detergent, or ¾ pint of liquid detergent to 100 gallons of a dalaphon spray.

Grasses that have partially dried foliage will not be killed with any of these mixtures.

For killing fresh growths of Bermudagrass, apply a spray consisting of 20 pounds of dalaphon to 100 gallons of water. This will usually eradicate the grass after three applications 10 to 14 days apart. If the Bermudagrass is rank, but still succulent, try a 30-pound dalaphon spray or the above formula using TCA.

It will pay to spray the grass around hives as early as possible. It may cost twice as much later on.

BILL SC
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A Lucky Strike

BILL SCHATZ
Spokane, Washington

IT WAS LATE afternoon and the bee inspection was nearly finished. As the last super was placed, a slight rustle under a drooping pine not 30 feet away aroused my attention. There was no question about its being an animal at first glance, but through my veil it took a good five minutes to identify the animal as old Mr. Skunk himself. There he was, restless at the base of the tree; pushing out, then back and over again as if to say to me, "move on, move on, you're in my way."

Looking back in memory of this event now, I'm sure that unbeknown to me at the time, my presence was holding up supper for Mr. Skunk.

We had noticed weeks before the partially dug holes around the front of several of our hives; however, since location of the apiary was so close to the city, we did not suspect skunk prowlers. The neighbors' dogs simply got the blame.

Nevertheless, there he was, the familiar black and white markings with the bushy tail watching my every move. At intervals he would step forward and throw his tail over his back threatening me. Actually man and skunk were equally cautious. I'm sure that I shouted "get out of here" at least twice with no results.

Slowly I began moving down hill toward my car and in so doing, Sir Skunk boldly came out in the open toward me much the same as a cat will sometimes follow a dog when the dog leaves the scene. He must have been a mean character since this is unusual conduct for any wild animal.

It was reflex and a natural last reaction for me to pluck a brick off a hive and let go with a bowling swing in the skunk's direction. You can imagine my surprise when that brick landed squarely on the skunk's head and shoulders flattening him on the spot. That wouldn't happen again in a hundred tries. Immediately I stopped running, but then who could tell if his perfume department was disabled? So I just waited. A slight breeze moved my veil and I wondered how come no smell. Then it hit me, that awful aroma. Needless to say, seconds later I was in the car heading down the road never so much as glancing back to determine the final outcome of Mr. Skunk.

Extract Your Sugared Honey

CEPHAS L. MARKLE
Selma, Calif.

SOMETHING I HAVE never found out is why so many beekeepers strip their bees of winter stores. Then they buy their competitors' product (sugar) to feed the bees. Sugar may seem to be a cheaper food for the bees, but is it money-wise? Look at the extra time consumed and the operating expense. Again, the weather conditions may not be right when the bees need to be fed.

I have heard several old timers say, "When spring comes what are you going to do with the combs of sugared honey? It isn't good for anything except building nucs. You can't extract it."

True, it is good for building nucs but you CAN extract it. This is how a friend showed me:

Spring manipulation is a must in any region. Work the sugared honey to each side or below the brood nest. Knowing that bees usually store honey above the brood nest, the picture begins to shape. The bees gather moisture to liquefy the sugared honey. Then it is re-stored above the brood nest.

As the brood nest expands outward the solid honey there is liquefied to give more brood room. Once liquid it can be extracted. It works well for my friend and me. The best of beekeeping to you.

A Talk To Beekeepers

M. J. DEYELL

"Blessed is the man who, having nothing to say, abstains from giving us worthy evidence of that fact" — George Eliot.

I SINCERELY hope I do not fall into the above category but it is entirely possible that I may, at times. Some of us may imagine we have something to say when, as a matter of fact, what we say or try to say is extremely trivial.

Some Beekeepers Do Not Wear Bee Veils

I have met some beekeepers who say, "I wouldn't think of wearing a bee veil. My bees are gentle and do not sting".

I recall some years ago when we had around 100 hives of bees in our home yard, a visitor made his appearance one day. The sky was overcast and the bees were inclined to be a bit ill-tempered. The visitor, instead of standing back behind the hives marched right up in front of them in the line of flight of the bees. When he saw that we fellows in the apiary wore bee veils he laughed and said, "I see you fellows wear bee veils. I never wear a veil". About that time one or two bees circled around his head until one of them stung him. He then began swatting at the bees right and left, which, of course, made matters worse. More bees attacked him and he began to run and the last we saw of him his arms were rotating like a windmill as he disappeared around the corner of a building nearby. That was the last we saw of him.

Stanley Meinhart and daughter of Lehighton, Pennsylvania, demonstrates that bees can be good if treated kindly.

It is possible at times to work bees without a bee veil, especially when there is a good honey flow on and bees are filled with nectar. However, I have always made a practice of wearing a bee veil.

I have had some experience with Caucasian bees. They are quite gentle to handle. As a matter of fact I had a few colonies of Caucasians that were so gentle that it was difficult, if not practically impossible, to make them sting me. I could pound my fist on the top of the brood frames and they would not sting. Not all Caucasians are as gentle as those were.

Most of my bees are reasonably gentle to handle. However, I recall one day driving into the yard and before I got out of the car a bee stung me on the nose. I could never understand why this happened. When I lighted my smoker, put on my veil and started to work my bees they appeared to be quite gentle.

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"Hefting" Hives for Stores

On my first visit to my yards quite early in the spring I make a practice of "hefting" my hives. If they are reasonably heavy I am quite sure they have plenty of honey. However, if the hives are sloping to the front I aim to lift the front of the hive as well as the back of the hive. Some colonies have a considerable amount of pollen and old combs which also adds to the weight of the hive.

I have a brick on each hive. If the colony appears to be in normal condition the brick is put in the center of the cover. If it is real heavy, like lead, I put the brick to the back of the hive. If it seems light and needs feeding I put the brick to the front of the hive cover. When I visit the yard again I can tell at a glance which colonies need attention.

Cleaning Out Hive Bottoms

Some beekeepers take time to scrape the hive bottoms clean. I do not always find time to do this. I sometimes scrape all the burr comb that is found between the bottom board and the bottoms of the brood combs. However, it has been my experience that the bees will build these burr combs again since they seem to need them as ladders to use in climbing up from the bottom board to the brood frames.

Scraping Brood Combs

Some take time to scrape all the wax from the brood combs. This takes considerable time and as a rule I do not find time to do this. Some beekeepers use nine combs in a 10-frame brood chamber. I like to use 10 frames in a 10-frame brood chamber. When I use the 10 frames the bee spacing between the top bars of the frames is supposed to be correct and therefore there is very little brace comb between the top bars of the frames. If I use nine frames in a 10-frame hive there is likely to be a considerable amount of brace comb between the top bars of the frames. I do use nine combs and sometimes eight combs in supers which makes the filled combs a little easier to uncap.

Feeding Sugar in the Spring

This is the easiest and simplest way to feed bees when they are a little short on stores. If bees are badly in need of food, by all means feed sugar syrup,

A brick placed in the center of the cover indicates that the colony is in normal condition.

two parts granulated sugar and one part of water.

My yards are some little distance from the main road and it is difficult, if not imposible, to drive into the yards during the early spring when sugar feeding is necessary. I buy sugar in 10 pound sacks which can easily be carried into the yards. I simply remove the outer cover also the center block of the inner cover, then pour the granulated sugar onto the inner cover which will hold at least three pounds of sugar when it is filled to capacity. A little of the sugar will trickle down through the hole in the inner cover which will let the bees know that they are being fed. The weather should be warm enough for the bees to collect water to mix with sugar. The main advantage in feeding sugar on the inner cover is that the sugar is directly above the cluster of bees and is easily accessibe to them.

Providing an Ample Amount of Stores in the Fall

It would appear that the majority of beekeepers do not leave enough honey for their bees in the fall, for winter stores and early spring brood rearing. There are some who winter bees in three stories. Such colonies, if the upper two stories are quite well filled with honey, are not likely to run short during the winter and will have an ample amount of food for maximum brood rearing during the early spring months.

As a rule a few colonies die during

This boy is not wearing a bee veil. Bees must be busy gathering fruit bloom honey.

the winter, due to poor queens. An easy way to make up these winter losses is to plan on having a few colonies wintered in three stories. Such colonies can usually spare four or five combs of brood with adhering bees, also some honey to make up winter losses. Queens for these make-ups can be purchased from southern breeders.

What to Do if Bees Start Robbing

It is somewhat difficult for a beginner beekeeper to detect robbing. Robbing is most likely to occur during a dearth of nectar, following a good honey flow. When one opens a hive and examines the combs when bees are not working well, some of the bees will circle around and light on the comb that is removed and after the comb or combs are put back into the hive the bees are likely to snoop around the hive entrance or try to enter small openings between supers or underneath hive covers. The best thing to do is to quit working bees that day and wait until bees begin bringing in nectar.

A Michigan Experience

In previous talks I mentioned my experience in commercial honey production in northern Michigan some years ago. I converted an old shed into a honey house. I tried to plug up all the holes in the sides of the building and to make the door bee-proof. During the raspberry honey flow which lasted from about June 15 until July 20 I had no difficulty when I extracted the honey. However, the honey flow shut off rather suddenly. I had about 225 hives of bees a short distance from the honey house. Naturally, when the honey flow stopped, the bees were in search of nectar and honey that was not well protected in containers. The bees discovered some small openings in the honey house and I experienced considerable difficulty in attempting to make the honey house bee-proof. I finally succeeded but I learned a few things the hard way.

You beginners who have honey to extract should make sure that the extracting is done in a bee-proof building.

Keeping Ahead of the Bees

June is the month when swarming is likely to occur and one of the causes of swarming is congestion within the hive. Beekeepers may fail to put on supers in time to prevent congestion. When the brood chamber and supers are crammed full of honey the bees have no combs in the hive in which to deposit the nectar and consequently make preparations for sending out a swarm. It is amazing how much nectar a strong colony will bring in during a few days — sometimes 15 or 20 pounds a day.

To avoid this congestion put on supers in time — a little in advance of when they are actually needed and place the supers on top of the supers that are already on. The bees will occupy these supers if needed.

KEEP

GLEANINGS

COMING

NEWS and EVENTS

CONNECTICUT
Eastern Apicultural Society
Storrs, Connecticut
August 10-12, 1961

Eastern beekeepers have a busy three days planned for August 10 through 12 at the University of Connecticut in Storrs, Connecticut. J. Peter Johnson of New Haven, Connecticut, president of the Eastern Apicultural Society, is chairman of the annual meeting program committee.

Mr. Johnson says that the following persons are among the speakers: Roy A. Grout, Hamilton, Illinois; E. J. Dyce, Cornell University; E. J. Anderson, The Pennsylvania State University; George J. Abrams, University of Maryland; N. E. Gary, Cornell University; A. S. Michael, U.S.D.A., Beltsville, Maryland; Frank R. Shaw, University of Massachusetts; Robert S. Filmer, Rutgers University; Eugene Keyarts, Madison, Connecticut; and Cameron A. Reud, Norfolk, Connecticut.

The range of subjects to be covered includes packing and wintering bees, extracting and preparation of honey, honey containers, bee diseases, roadside selling, sugar content of honey plants, and many other problems and opportunities for beekeepers.

One afternoon will be given over largely to a panel ready with answers to questions on making beekeeping pay.

Mrs. M. Louise Yates, secretary of the society, urges advance registration by all who plan to attend the meeting at Storrs. Details are available from Mrs. Yates, 11 Chapman Street, Hartford 6, Connecticut.

Tours for ladies have been arranged to an unusual herb garden in Caprilands, Coventry, and to Hillandale Handweavers, Pomfret Center. A honey baked-goods contest is also planned.

Cary Rowland and Carleton C. Hubbard of Middletown are in charge of the "bee book booth," an opportunity to contribute, swap, or sell publications on bees and beekeeping.

The Eastern Apicultural Society, with about 700 members, was formed to promote the art and science of beekeeping, primarily among hobbyist beekeepers. The society cooperates with others who are engaged in educational, commercial, and research activities in beekeeping.

MASSACHUSETTS
Worcester County Beekeepers' Assn.
Northboro, Massachusetts
June 17, 1961

The June meeting of the Worcester County Beekeepers' Association will be held at the home of Mr. and Mrs. K. G. A. Andersson, Northboro, Massachusetts, on June 17 at 2:00 p.m. and followed by a picnic lunch.

The directions for getting to the Andersson's are, take Route 20 to the Bigelow Nurseries in Northboro, take the road directly opposite the nursery for three miles to the four corners.—Glenn T. McLain, Jr.

PENNSYLVANIA
Crawford County Beekeepers' Assn.
June 29, 1961

The Crawford County (Penna.) Beekeepers' Association will hold an afternoon and evening meeting starting at 4:00 p.m. at the queen yard of Myrton Gray, located between Meadville and Cambridge Springs at the intersection of Routes 86 and 198.

Wm. Clarke, Jr., of Penn State and others will speak and give demonstrations. Picnic lunch and wiener roast. In the event of rain, meeting will be held in Woodcock Grange hall, one mile north on Rt. 86. — Ivan Barton, Secretary.

Midwestern Beekeepers' Association
MISSOURI
June 11, 1961
Kansas City, Mo.

The Midwestern Beekeepers' Association will hold its regular monthly meeting at the Motel Lounge, Unity Farm, 2:30 p.m., Sunday, June 11, 1961.

Take 50 Highway east to Unity Farm, turn left one block on Colburn Road then left again to the Motel Lounge.

Mr. Roger Boren, Kansas State Apiarist from Manhattan, Kansas, will be the principal speaker. Mr. Clyde Corn will be host and weather permitting will conduct an orchard and grounds tour of Unity Farm. Refreshments will be served. Everyone welcome. — James A. Worrel, Secretary.

NEW YORK
Southeastern Beekeepers' Association
Middletown, New York
May 20, 1961

The Southeastern Beekeepers' Club will hold its next meeting May 20, at 8:00 p.m. at the Farm and Home Center Building, Middletown, New York. We are in the need of more members! —Lewis van der Meulen, Sec.

KANSAS
Northeastern Beekeepers' Association
July 2, 1961
Bethel, Kansas

Members of the Northeastern Kansas Beekeepers' Association and any others interested in the culture of bees are cordially invited to attend the meeting of this association, which will be held Sunday, July 2nd, 2:30 p.m. at the home of Mr. and Mrs. C. W. Hildebrand, 7725 Webster, Bethel, Kansas.

This will be the second outdoor meeting of the season and should be well appreciated out among nature and the bees, with Mr. L. B. McGraph of Independence, Missouri, and a man of 40 years' experience, as our speaker. He has gained much of his experience in the New England States. His subject will be "Mid-summer Beekeeping Management and Method of Swarm Control". This subject should be a very welcome one at this time. Mr. McGraph also manufactures beekeepers' supplies so he is unusually well equipped. Refreshments will be served.

Elections were held at the May 7th meeting reinstating for the following year all officers of the past. President, Maynard D. Curtis, 9505 Kansas Ave., Muncie; Vice President, Walter Wilkins, Rt. 2, Bonner Springs; Secretary, Mrs. Bert M. Parrish, 7512 Kansas Ave., Muncie; Treasurer, Vernon D. Queberg, 3015 N. 32nd St., Kansas City; and Program Chairman, Mrs. Roy F. Ferguson, 4126 Francis St., Kansas City. — R. F. Ferguson, Ass'n. Editor.

CONNECTICUT
Beekeepers' Association
Haddam, Connecticut
June 24, 1961

The Connecticut Beekeepers' Association will hold its summer meeting on June 24, 1961, beginning at 10:00 a.m. at the Haddam Agricultural Center, Haddam, Connecticut.

Folks who attend the all day meeting should bring a picnic lunch or a covered dish for our picnic-style lunch. All beekeepers, old and new, are cordially invited to attend. Come and have a good time.

At the April meeting in Hartford, the following officers were elected: President, Mr. Harry A. Powell, 1242 East St., New Britain; Secretary, Mrs. Harry Powell; Treasurer, Mr. Edwin LaBrake, Woodbridge. The upcoming meeting of the Eastern Apicultural Society at Storrs, Connecticut, was also discussed.

This year holds a special significance for the Connecticut Beekeepers' Association since it marks our 70th Anniversary as well as the year when we will host the Eastern Apicultural Society.—John P. Nowicki, Pub. Chairman.

MICHIGAN
Wayne County Beekeepers' Seminar

The annual Wayne County Beekeepers' Seminar was held on the 4-H Fairgrounds, Belleville, Michigan, April 15. An all-day affair, it was very well attended by experienced and hobby beekeepers, and those contemplating taking up beekeeping. Roger Hoopingarner of Michigan State University showed colored slides of nectar-bearing plants and beekeeping procedures. Slides showing AFB were also shown.

Questions and answers and discussion from the floor followed with many enlightening subjects discussed.

John Buchanan from The A. I. Root Company, showed the new low-cost observation hive and demonstrated a hive lifter for easing the work of inspecting one's hives.

The movie, "Miracle of the Bees" wound up the day's program.

Mr. Edgar C. Kidd, County Extension Agent, and Al Tennenhouse deserve the credit for making arrangements for and conducting this interesting and successful bee school session.

MASSACHUSETTS
Middlesex County Beekeepers' Assn.
Woburn, Massachusetts
June 24, 1961

The second outdoor bee meeting of the 1961 summer season will take place at the home of Mr. and Mrs. Douglas Brown, 620 Main St., Woburn, Mass. Their son, Doug, is a beekeeper too. Their apiary will be inspected by the club members along with the club hive which was brought from the Fitzgerald residence in Weston where the May meeting was held. The season has been cold and rainy in Middlesex County, so we hope the bees will make up for lost time. Visitors are welcome to the summer meetings. The hives are inspected at 2:00 p.m. followed by a business meeting. Families bring their own picnic supper. Coffee and ice cream are provided by the association. Facilities are available for charcoal cooking.—B. Carlson, Sec.

USDA ANNOUNCES SCHEDULE OF PRICE SUPPORT RATES FOR HONEY

THE U. S. Department of Agriculture announced today that the following schedule of price support rates will apply to 1961-crop honey:

	East Cents	West per lb.
White or lighter table honey	12.9	12.0
Extra Light Amber table honey	11.9	11.0
Light Amber table honey	10.4	9.5
Other table and non-table honey	8.4	7.5

Montana, Wyoming, Colorado, New Mexico and States west are included in the Western area for pricing. All other States are in the Eastern area.

This schedule of rates reflects the national average support price of 11.2 cents per pound, equivalent to 75 percent of parity, fixed by the Secretary of Agriculture March 30 as the level of support for 1961-crop honey. While the national average support price is 2.6 cents per pound higher than for 1960, rates show increases from the 1960 schedule ranging from 1.1 cents per pound for dark and non-table honey to 3.1 cents for white or lighter table honey.

Except for the increase in support rates, the 1961-crop program is identical to the 1960 program and provides for farm-storage loans and purchase agreements on eligible extracted honey of U.S. Grade C or better, in 60-pound or larger containers, in approved storage.

Beekeepers or cooperative associations of beekeepers may apply directly to Agricultural Stabilization and Conservation (ASC) county offices for loans or purchase agreements. Detailed information regarding the program will be available at ASC county offices soon. The maturity date for loans and purchase agreements is April 30, 1962.

The Department, in commending the industry for marketing the larger than normal 1960 crop, continues to emphasize the importance of intensified activity in improving the marketing and distribution of honey by all segments of the industry. It also urges beekeepers to increase efforts to utilize bees in pollination of important seed, vegetable, and fruit crops on a remunerative basis.

Honey Price Support Operations

As of March 31 the U. S. Department of Agriculture reports 631,000 pounds under the loan agreement. This is approximately the same as of March 31, 1959, and about one-sixth of the amount of March 31, 1958.

Professor Martin of Michigan State University Moves to Nigeria

Mr. E. C. Martin, Associate Professor at the Michigan State University, will leave for the University of Nigeria, Nsukka, Nigeria, on April 25. He will take over the duties of science advisor for the biological sciences. The Michigan State University is helping in the development of this new West African University.

(Continued on page 379)

First Gulf Coast Meeting Was Big Success

Some of the ladies who attended with their husbands were: (left to right) Mrs. Rudy Gonzales, Mrs. J. E. Hastings, Mrs. Jim Davis and daughter Ginger, Mrs. T. E. Kane (hostess), and Mrs. Roland Sykes and daughter Pamela.

Among those who attended the field meeting from out of town were: Dr. W. W. Maxwell, D. S. Monroe, Roland T. Sykes, Rudy Gonzales, and E. B. Ault.

Claude Burgin, Chief Apiary Inspector, addresses the meeting.

MORE THAN 100 beekeepers and their families attended the first annual Gulf Coast Field Meeting held Sunday, April 16, and sponsored by the Houston Beekeepers' Association. Mr. and Mrs. T. E. Kane, prominent Caucasian Queen breeders, were the hosts for this fine gathering.

"The success of the meeting went beyond our expectations", reported Mr. A. Koska, president of the aggressive Houston Beekeepers' Association.

The varied program proved so interesting as to hold the group in their seats all day without drifting. Practical demonstrations, how-to-do-it talks, and a tour of the large queen breeding facilities of Kane's apiaries, proved a big drawing card. Beekeepers came from all over Texas and neighboring states. A fine buffet luncheon was served through the courtesy of Dr. W. W. Maxwell, and Mr. and Mrs. T. E. Kane.

"The success of this meeting," said E. A. Callenius, program chairman, "has encouraged us to make this an annual spring event. Plans are already being formulated for the 1962 meeting. We hope to interest other associations in joining with us to make future Gulf Coast Field Meetings better and more educational for all who attend".

Interested groups should contact E. A. Callenius at 1202 Bingle Road, Houston 24, Texas.

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HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. HUBBARD APIARIES, ONSTED, MICHIGAN.

IOWA HONEY, one can or truck loads. RUSSELL D. SMALLEY, BEAVER, IOWA.

CLOVER extracted honey in sixties. ABRAM BRUBAKER, 1525 September Dr., LANCASTER, PA.

TUPELO, wild flower, alfalfa, or orange, in 60's. LANCASTER COUNTY DUTCH GOLD APIARIES, 910 State St., LANCASTER, PA.

HONEY—In any size container, also Mail Order Dealer for Bee Supplies. Write for prices. L. E. ALLEN, TIPTON, MICH.

FOR SALE—White clover and light amber goldenrod honey, in 60-lb. cans, truck or carload. CLOVERDALE HONEY CO., FREDONIA, NEW YORK.

SOUTH DAKOTA CLOVER HONEY, white to water white, low moisture content. Truck load lots in new cans. SCHMIDT HONEY FARMS, WINNER, SOUTH DAKOTA.

MICHIGAN'S finest raspberry, basswood, clover comb honey in 4 x 5 window cartoned sections. Deluxe extra fancy, $9.00 case; Extra fancy, $8.50; Fancy, $7.50; No. 1, $6.50; No. 2, $5.50. E. Z. QUICK WAY B FARMS, BOYNE FALLS, MICHIGAN.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—All grades of extracted honey. Send sample and price. DEER CREEK HONEY FARMS, LONDON, OHIO.

CASH FOR BEESWAX. Write as to quantity and we will quote price. MUENCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. THE A. I. ROOT CO., MEDINA, OHIO; COUNCIL BLUFFS, IOWA; SAN ANTONIO, TEXAS.

WRITE FOR SHIPPING TAGS and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. WALTER T. KELLEY CO., CLARKSON, KY.

WANTED—Buckwheat and light amber honey. EASTERN FOOD PRODUCTS, 421 Bedford Ave., BROOKLYN, N. Y.

WANTED—Honey and Beeswax. WALLY'S BEE ENTERPRISE, 4900 Morningside, SIOUX CITY, IOWA.

HONEY WANTED for bottling, all types in drums, tins, trailer and car lots. Send samples each lot. Write: CHAS. E. FARRIS CO., 99 Hudson St., NEW YORK CITY. Est. since 1910.

WANTED—Honey in 60 pound cans, also beeswax any quantity. L. E. ALLEN, TIPTON, MICHIGAN.

ALL GRADES extracted honey wanted in both 60 pound cans and 600 pound drums. PRAIRIE VIEW HONEY CO., 12303 12th St., DETROIT 6, MICHIGAN.

WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

WE RENDER cappings, old combs and buy your beeswax. Shipping tags sent on request. M. R. CARY CORP., GPO Box 818, SYRACUSE 1, NEW YORK.

WANTED — Chunk and extracted honey. Send sample and price. RONALD CULP, CIRCLEVILLE, OHIO.

BEE SUPPLIES FOR SALE

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. HUBBARD APIARIES, Manufacturers of Beekeepers' Supplies and Comb Foundation, ONSTED, MICHIGAN.

THE BIGGEST Bee Supply Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

QUEENBEE PAINTING OUTFITS, $1.50. INTERLOOKERS, $3.00 postpaid. SOUTHWICK APIARIES, WABAN, MASS.

FREE CATALOG—Cypress bee hives and bee supplies. Save up to 40% on hives that last. MYERS CRAFT MANUFACTURING CO., BURGAW, NORTH CAROLINA.

No. 1 Hive Bodies, $2.00; No. 2 Hive Bodies, $1.75; Covers and Bottom boards, $1.10; Shallow Extracting Supers, $1.25; Hoffman Full Depth Frames (per hundred), $11.00. Catalog on request. HAGEN-LUNCEFORD MFG. & SUPPLY CO., 2500 N. 4th Street, COEUR D'ALENE, IDAHO.

BEFORE YOU SELL your honey or buy your honey containers see HUBBARD APIARIES, ONSTED, MICHIGAN.

Our beginner's book "HOW TO KEEP BEES AND SELL HONEY", 75¢ postpaid is what you need. Over 100 pages and 175 pictures make beekeeping easy and profitable from the start. WALTER T. KELLEY CO., CLARKSON, KY.

NEW CYPRESS BEE WARE 9⅝ supers, $1.05,, 6⅝ supers, 70¢, 5¾ super bottoms or covers, 60¢, telescope cover (without metal) 75¢. C. L. STONECYPHER, HOMERVILLE, GA.

OVERSTOCKED on zinc queen excluders. Write for special price. HUBBARD APIARIES, ONSTED, MICHIGAN.

500 BEEWAY SECTIONS, best quality, $16.00, 5 pound Thin Super Foundation for above sections, $6.50. (100% Pure Beeswax). HUBBARD APIARIES, ONSTED, MICH.

100% PURE BEESWAX, the Genuine Bee Approved Comb Foundation. Rib-wired with hooks - Plain Medium Brood - Thin Super. Wooden Bee Supplies. Ask about our warehouse nearest you. These supplies are manufactured by us. Buy direct of factory. HUBBARD APIARIES, ONSTED, MICHIGAN.

$$$$ SAVE on covers, bottoms, supers, frames, foundation, other bee supplies. KEHM BROS. APIARIES, Rt. 1, Box 346, GRAND ISLAND, NEBR.

BEE SUPPLIES—All types. Write for prices, or contact H. L. MUNDELL, 639 28th Street, North, LEWISTON, IDAHO.

USED EQUIPMENT FOR SALE

FOR SALE: 1400 colonies of bee equipment. All standard. 10-frame, full depth. About four to five stories high. Write for complete details. Box 69, GLEANINGS, MEDINA, OHIO.

14 KILLION comb honey supers, 4 frame Woodman, power driven extractor, two Root uncapping baskets. All in good condition. H. H. RICKLY, R. R. 2, BLUFFTON, OHIO.

TWELVE COLONIES bees, 12-frame size and 24 supers plus excluders, $100. Six modern Dadant 11-frame colonies and supers, $55. HAROLD WILKINSON, 5544 New London Road, ASHTABULA, OHIO.

350 HIVES BEES, plenty supers, nearly all 10 frame size, standard depth, good locations on yearly rental, near Santa Paula, California. Or will trade up or down for hives in Saskatchewan. Box 601, RESEDA, CALIFORNIA.

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TWENTY ACRE TRACT, modern home, honey house with other buildings. 232 colonies bees, equipment. CARL HAAG, ALTON, IOWA.

STOP before you buy, write for free catalog on bee supplies, compare prices. KEHM BROS. APIARIES, Rt. 1, Box 346, GRAND ISLAND, NEBR.

FOR SALE—20 colonies Italians; also small associated garden center, nursery; dwelling, other necessary buildings; $9,000. SMITH PERENNIAL GARDENS, HOISINGTON, KANS.

BEES AND QUEENS FOR SALE

WE USE ALL POSSIBLE CARE in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

FOR SALE - - - - - HALF OUR BEES. 3,000 one story 10-frame colonies. No AFB. Good condition - honey for winter - FOB central California. $6.50 each in lots of 500 or more. ART HARRISON, Box 602, LOS BANOS, CALIFORNIA.

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Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
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"SWARMING STOPPED COLD"
95% Foolproof
No Gimmicks
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Bigger Crops - Better Beekeeping
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49 Years Continuous Service
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QUALITY PLUS SERVICE
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THE CONNEAUT CAN CO.
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HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
W. F. STRAUB & CO.
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CARNIOLAN and CAUCASIAN BEES for 1961. Booking queens, each $1.25, clipped and marked. 2 pound package with queen, $4.00. 3 pound package with queen, $5.00. LEWIS & TILLERY BEE CO., R. 3, Box 261, Phone DU 2-8371, GREENVILLE, ALABAMA.

ITALIAN BEES and QUEENS: Send us your rush orders. Queens, $1.35, 2 lbs., $4.25, 3 lbs., $5.25. HUBBARD APIARIES, ONSTED, MICHIGAN.

CAUCASIAN QUEENS, $1.25 ea. Extra good producers and gentle to handle. C. D. WARDELL & CO., Box 6226, PALESTINE, TEXAS.

BEES IN 10-FRAME hives, either one-story or two-story. How many do you want? PAUL ENGELHARDT, ANTWERP, N. Y.

CAUCASIAN QUEENS, $1.00 each. Since 1941. EPPLING'S APIARIES, Edgemont, COVINGTON, VIRGINIA.

DARK ITALIANS, bred for production and hardiness. Queens, $1.00. HENRY LOEHR, CALDWELL, TEXAS.

ITALIAN and CARNIOLAN QUEENS, $1.00 each. LUTHER PICKETT, EFLAND, N. C.

PRODUCTIVE ITALIAN QUEENS—Ready June 25. $1.00 each. SHIRL BAKER, MECOSTA, MICHIGAN.

QUALITY ITALIAN QUEEN BEES—Summer Prices—each $1.00, 5 or more, 90¢ each, 25 or more, 85¢ each. A. G. WOODMAN CO., GRAND RAPIDS 4, MICH. or LENA, S. C.

GOOD ITALIAN bees and queens. Good honey getters and very gentle. Dadant's Starline and our regular stock. 2-lb. package and queen, $4.00 each, 3-lb. package and queen, $5.00. Queens, 1 to 25, $1.00, 25 to 100, 90¢, for Dadants' Starlines, add 30¢ per queen or package. Tested queens, $2.00 each. Royal Jelly, $10.00 per ounce. Phone FR6-3152 Saxapahaw, ALAMANCE BEE CO., Geo. E. Curtis & Sons, GRAHAM, N. C.

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HONEY PLANTS our specialty. Catalog on request. PELLET GARDENS, ATLANTIC, IOWA.

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BEES REMOVED from house or tree or hive without touching either house or bees. Bees will then move honey into hive. Save property, honey, and bees with my method. Send $2.00 for details. Satisfaction guaranteed. GEORGE HAWKINS, Rt. 1, LAWSON, MO.

RENDERING every day in our all new plant. All honey saved from cappings. Rendering slumgum and old combs. Write for free shipping tags and rates. HUBBARD APIARIES, ONSTED, MICHIGAN.

YEAR END bee supply and comb foundation prices now. Send list for best quotation. At once, shipment from our overstocked factory warehouse. Send us your rush orders for bees and queens – direct shipment from the Gulf States. Phone: HO 1-3481, HUBBARD APIARIES, ONSTED, MICHIGAN.

HAIR LOSS? SCALP ITCH? DANDRUFF? – Write for Home Treatment Formula. KORMOCZY, 3116 Dose Terrace, SEATTLE 44, WASHINGTON.

OF INTEREST TO WOMEN

PLASTIC FREEZER CONTAINERS – Square pints, $9.95; quarts, $15.00 per hundred, postpaid. Sample pint, 25¢. OXBORO, Box 7031 CF MINNEAPOLIS 11, MINN.

WANTED

LARGE BEE SUPPLY Manufacturer and Honey Processor wants Supply Dealers and Honey Buyers. Write for Catalog and Honey Prices. HUBBARD APIARIES, ONSTED, MICH.

WILL PAY a reasonable price for any or all of the following equipment, if located in N. W. Ohio, or if delivered to me in Toledo, Ohio. Must be certified by Ohio State inspectors, to be free of AFB: 10 full depth extracting supers, 10 shallow supers, 20 bottom boards, 20 inner covers, 20 metal clad covers, 100 full depth frames and 100 shallow frames with or without combs. Also 20 healthy colonies Italian bees with active queens. Write, giving your proposition in first letter. If satisfactory, I will contact you. Box 6, care of GLEANINGS, MEDINA, OHIO.

WANTED—20 frame extractor, good condition. WILLIAM WEIGOLD, 1866 Belding, SAGINAW, MICH.

ROYAL JELLY

SUPER STRENGTH 100 mg. Royal Jelly capsules in bottles of 100 for $10.00. PRAIRIE VIEW HONEY CO., 12303 Twelfth St., DETROIT 6, MICHIGAN.

MAGAZINES

THE SCOTTISH BEEKEEPER (The official organ of the Scottish Beekeepers' Association.) Scottish in character, international in appeal. Annual subscription $2 post free. Sample copy from ROBERT N. H. SKILLING, F.S.C.T., 87 King St., KILMARNOCK, AYSHIRE.

INDIAN BEE JOURNAL, know in eresting facts concerning the honeybees of India. The only Bee Journal of India published in English. Subscription Rs. 12/- or Sh. 17/6d (Sterling) or $2.75 per year (INTERNATIONAL M.O.). Sample copy 2s. or 25 cents. Can be had from The Managing Editor, Indian Bee Journal, Naini Tal, U.P., India.

PROFIT AND HEALTH—Raise dairy goats. Learn how. Monthly magazine, $2 yearly; sample and information 25¢. DAIRY GOAT JOURNAL, COLUMBIA T3, MISSOURI.

INTERESTED IN ANGORA GOATS? Read the SHEEP and GOAT RAISER, Hotel Cactus, Box 189, SAN ANGELO, TEXAS, the only ranch magazine published serving the Angora Goat Industry. Subscription, $3.00. Sample copy 25¢.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping, and also Apicultural Abstracts. Bee World is $9.00 a year to non-members. but the B.R.A. membership subscription of $7.00 includes Bee World. B.R.A. members in America are served by the B.R.A. American Committee, and have their own Branch Library at O.A.C. Details free (or with specimen Bee World and new B.R.A. Handbook, 50 cents) from Apiculture Department, Ontario Agricultural College, Guelph, Ontario, Canada.

ARCHIV FUR BIENENKUNDE, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest scientific bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. BIENE-VERLAG, GIEBELBACHSTR, 19, LINDAU (B) GERMANY.

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Phone: CHestnut 6-2769
In the mild climate of the deep South.
Plenty of
Italian Queens & Package Bees
MAY 8th AND AFTER
Queens .....$ .75 any amount
2 lb. pkgs. w/qs 3.25 any amount
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Please give our 37 years of experience a trial.
Large enough to accomodate, small enough to appreciate.

WILLIAMS ITALIAN QUEENS
Mated and Laying Tested Queens
Certificate with each shipment
1-9 Air Mail .....$1.25 each
10-99 Air Mail ..... 1.15 each
100 Up Air Mail ..... 1.05 each
Clipped and Marked 10¢ each.
DR. WILLIAMS APIARIES
115 W. Sterling Ave. Baytown, Texas

California Italian Queens
Extra Good Breeders
1 to 24 queens ....$1.20 each
25 or more ..... 1.10 each
DAN W. ALVIES
670 Roe Road Paradise, California

Beeswax Rendering Service
Exchange Your Beeswax for Foundation
Write for Price List.
WAX WORKERS, INC.
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TEXAS
Caucasian Queens

	1-24	25-99	100 un
Queens	**$1.45**	**$1.35**	**$1.25**

All queens personally produced by J. E. Hastings and his breeding stock bred for non swarming, very gentle, good honey producers.
10% books your order, balance two weeks prior to shipping. Health certificate, weight and live arrival guaranteed. Five cents extra for marking or clipping.
KANE'S APIARIES
Rt. 1, Ph: SW 8-3039 Hallettsville, Texas

RESEARCH REVIEW
(Continued on page 349)

mated with normal insects in the field, causing them to lay infertile eggs. Each time sterile flies were released, the normal population in the field was reduced. After several releases, the insect finally became extinct. This method can be successful only where it is possible to rear the insect pest in large quantities in order to overwhelm the natural field population. Researchers are now studying the biology of several insect pests in hopes that they might be controlled or eradicated in this manner.

Bait Sprays:

The Mediterranean fruit fly was accidentally introduced into Florida in 1956. At that time, it was known that the fly was attracted to a protein hydrolyzate which is a food material used as a base for many common meat sauces. The sauce base was mixed with an insecticide and sprayed from the air in fairly large size droplets. In some areas, many air applications were necessary but eventually the fly was eradicated. It is remarkable that the United States is the only large citrus producing country in the world which has citrus fruit free of worms. If the Mediterranean fruit fly had not been eradicated, we would have to tolerate some wormy fruit, as well as an additional insecticide application on citrus.

We shall see many changes in the next few decades. Not too many years ago, man worried about malaria (74 cases of malaria in the United States last year versus about 80,000 cases a year in the 1930's). Typhoid and tuberculosis were major killers only a few years ago. DDT helped to reduce the death rate from malaria by killing the mosquitoes which carried the disease. Chlorine in water reduced the typhoid problem and drugs have affected the tuberculosis death rate.

Many beekeepers around the country have lost bees because of insecticide applications. In some areas, the losses were unavoidable but, in other cases, carelessness was involved. As we learn more about ourselves and the world around us, we will increase the life span of man and bees.

WEAVER'S DARK ITALIAN QUEENS

We have bred this strain for over 25 years because our customers, including many of the most successful honey producers, like them.

1-24	25-49	50 up
$1.00	**$ .95**	**$ .90**

Clip and/or Mark, 5¢ each operation.

WEAVER APIARIES Navasota, Texas

Phone TA 5-2312

SMITH'S SELECTED QUEENS

My business is now mostly queens. I spend most of my time in the queen yard and over 40 years' experience gives me the ability to produce what we think are good queens. You that have used them know, you that have not, may we prove to you they are good queens.

1-9 .... 90¢ 10-49 .... 85¢ 50 or more .... 80¢

Deduct 10¢ per queen after July 1st

N. B. SMITH & CO. CALHOUN, ALABAMA

Any Way You Look At It A GLEANINGS Ad Pays off

Many of our thousands of readers wish they knew how to buy from you. The most inexpensive way to let them know is to advertise in Gleanings. For over 85 years Gleanings has been taking the work out of selling.

Be sure your "selling story" is in the next issue. Send for an advertiser's rate card today.

Gleanings in Bee Culture
Medina, Ohio

QUALITY BRED QUEENS
"CAUCASIANS"
Breeders furnished by J. E. Hastings. Bred for honey production, hardiness and gentleness.
1-24 ..... $1.10 each
24-99 ..... 1.00 each
99 & Up ..... .90 each
Italian queens, 75¢ each
or $65.00 per hundred.
All queens shipped Air Mail.
WALTER D. LEVERETTE
APIARIES
P.O. Box 374 Dallas, Ga.

CALIF. CAUCASIAN QUEENS
1 to 24, $1.50 25 to 99, $1.25
100 up, $1.00
DON J. STRACHAN
2522 TIERRA BUENA RD.
YUBA CITY, CALIF.

QUEENS THAT SATISFY
From improved yellow banded Hybrid strain. Marked and clipped unless otherwise specified. Shipped Air Mail for quicker delivery.
1 to 24, $1.10 25 up, $1.00
No packages please.
S. C. SQUIRES
P.O. Box 566 Chapel Hill, N. C.

HUMPHREY BEE FARM
REIDSVILLE, GA.
Caucasian Queens
1-24 ..... $ .90
25-49 ..... .80
50 up ..... .70
Queens Clipped and Marked at no extra cost.

HARPER'S
FAMOUS HIGH QUALITY
ITALIAN QUEENS
By Air Mail after June 10th
85¢ each
10 for $8.00 100 for $75.00
We will be happy to supply your needs.
CARLUS T. HARPER
New Brockton, Ala.

SOUTH AMERICAN TOUR

(Continued from page 361)

where his helper was extracting heavy water-white thistle honey from full depth L frames. There were two radial extractors, one 60 frame and one 40 frame, and a very large Merry-go-Round to store the uncapped combs of honey until they were placed into an extractor. A huge hydraulic press was used to press the cappings. Here was a good practical operation. We did not need an interpreter as Sr. Geoghegan spoke very good English, his people having come from Ireland.

Royal Jelly is Produced

After seeing Sr. Geoghegan's honey house we all journeyed to Sr. Hernandez' home, warehouse, machineshop, extracting plant and office. Several years ago Sr. Hernandez had visited us in Wisconsin and invited us to visit him. At that time we never dreamed we would ever return his visit, but here we were, — as if we were in a dream! Sr. Hernandez' whole operation seemed a marvel of organization. Besides honey and beeswax he produces Royal Jelly, (he had 400 pounds on hand) trapped pollen, package bees and queens. In season his queen schedule called for 600 mated queens every 10 days.

He manufactures bee supplies for himself and others. He has completely equipped wooden-ware and metal working shops. He manufactures his own foundation, adding a chemical to the hot wax which he claimed repels wax moths. His bottom boards are indestructible, made of a native wood that must be made up while green, being too hard to work when cured. This wood is as heavy as iron.

Here the extracting operation is something to see! Three 65 frame radial extractors, being on the second floor, require no pumps. Uncapping is done by hand, cappings fall into a large false-bottom tank, draining directly into the honey line from the extractors. The 10 huge concrete honey tanks, capacity each 20,000 pounds are on the ground floor, with the honey gates high enough for filling 55 gallon metal drums. The supers of honey, eight or 16 standard 10 frame deep, depending on the size of the specially constructed drip boards, are unloaded from the trucks with an

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electric hoist, lifted to the second floor where the screened space is large enough to store several truckloads of honey to allow the bees that may be present to leave the supers prior to being carted into the screened extracting room. Extracting capacity is 30,000 pounds per day.

We did not see the plant in operation because the first crop of water white thistle honey was all in containers. All equipment was cleaned, ready for the expected second crop from sunflowers. He had a good crop, averaging 200 pounds per colony. It must have been a good flow as we understood he had 400 colonies per outyard!

Asked what swarm control method he used, he replied, "yours", with the exception, giving a young laying queen instead of a ripe queen cell.

We saw his honey promotion sales material, good looking labels, Honey for Health booklets, Royal Jelly, Pollen and Honey for Health pamphlets. NO questionable claims. We were informed that because the national diet there was mainly meat, bread and wine, selling honey was difficult.

We were shown a good sized room adjacent to the modern office, used for the production records, honey, pollen, Royal Jelly and queens. Any yard or single colony condition could be ascertained at any time, so complete were the records.

Large Producers in Argentina

Sr. Hernandez with 8,000 colonies was not the largest beekeeper in Argentina, a neighbor had 10,000 colonies. In '59 Argentina produced 37,400,000 pounds of honey from 600,000 colonies of bees, a 62⅓ pound per colony average. The 10 year average production was 26,400,000 pounds or for the same number of colonies, 44 pounds per colony. Modern methods gave Sr. Hernandez and Sr. Geoghegan 200 pounds per colony in 1959. Their main crop came from thistle and they expected another from the many acres of sunflowers, grown for cooking oil.

We met Sr. Hernandez's charming family at 5:30 tea. His mother told us that this large honey production plant had its beginning with one colony! We informed her that that was our humble beginning in 1911.

We returned to Sr. Geoghegan's home for a delightful dinner served in garden with Sr. Geoghegan's gracious mother as hostess. His wife and family were at their seashore home for the summer. After dinner Sr. Hernandez returned us to our hotel in Buenos Aires. This visit with two of Argentina's modern efficient commercial apiarists was most interesting. Time was too limited but we were happy that we could leave our scheduled tour even for so short a time. As it was, this visit with beekeepers was a highlight of our trip. There was so much to see and learn in so short a time that some items of interest did not get into my notes.

What we saw relative to the Bee and Honey Industry on this trip, firmly convinced us that the promotion of honey sales must be accelerated the world over to keep pace with new production that is bound to come!

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and ROYAL JELLY
Write for Prices

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Shipped by Air Mail

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Untested Queens	**$ .75**
Tested Queens	**1.50**
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Packages shipped F.O.B. Express or Parcel Post, Postage Collect.

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Quantity	Queens	2 lb. pkg.	3 lb. pkg.	4 lb. pkg.	5 lb. pkg.
Prices June 1st 1-24	$ .95	$3.25	$4.00	$4.75	$5.75
25 up	.90	3.00	3.75	4.50	5.50

(For Queenless or Booster packages deduct 95¢ each.)

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Quality ranks tops in Honey Production

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5 lb. pkg. with Q.	6.50	6.00	5.75
Queens	1.00	.80	.75

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HYBRID QUEENS

are necessary to show the extra pounds of honey for beekeeping profit. **MIDNITE HYBRIDS** give you the extra good wintering colonies plus the ability to store honey in beautiful white capped combs. If wintering is your problem plan now to incorporate **MIDNITE HYBRIDS** in your own testing program.

STARLINE HYBRIDS, the oldest commercially successful hybrid available brings you the vigor of a hybrid strain in the Italian race. COMPLETELY NEW this season, this STARLINE has been tested for five seasons bringing you the finest strain of bees available. If you have not used the **NEW STARLINE,** requeen out all of your poorer queens and try them for your next honey crop.

ALL HYBRID queens are reared under constant, stimulant feeding to insure large, well-developed queens to head populous colonies. Plan on using these queens in all your normal work. RETURN MAIL shipments throughout summer and early fall.

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Clipped and marked by experienced handlers for only 15¢ each additional.

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Select tested queens 7.00

All queens are personally reared. Your order appreciated. Order 1 or 1,000.

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4-lb. pkgs. w/q 5.50

Packages shipped F.O.B. Express or via Parcel Post Collect.

NORMAN BEE CO.

Route 1 RAMER, ALA.

BEES LOSE AT THE ALAMO

(Continued from page 335)

ey from the Alamo bees. The honey was bottled under a special "Alamo label", and the funds derived from its sale in the souvenir room were used in the maintenance of the SELF-SUPPORTING Alamo....an unusual fact in these times.

MONTHLY HONEY REPORT

(Continued from page 327)

ers will send in their views to Editor Jack Happ for publication in the **Gleanings' Mail Box.** Let's hear from you concerning the new support price.

During the past year honey prices have always been featured here with an occasional comment on beeswax. This has apparently prompted readers to write asking for some information on beeswax on the foreign and domestic market. Happily it can be provided this month so here it is:

Moroccan beeswax ...	46¢ per lb.
Benguellan	48¢ per lb.
Abyssinian	49¢ per lb.
Brazilian	53¢ per lb.
Chilean	57¢ per lb.

All of these prices are quoted delivered to a U.S. port.

NEWS AND EVENTS

(Continued from page 369)

This will be a pioneer venture for Mr. Martin, because at this time they do not have a biological science department and he will be in charge of laying out the program. Two-hundred-fifty students were chosen from 1500 applicants last year to attend the university's first year.

Even though Mr. Martin's work will not be directly related to beekeeping he hopes to find time to look into the status of bee culture in Nigeria.

Our best wishes go with the Martin family and especially to "Bert" in his new field of endeavor.

KEEP GLEANINGS COMING

SWARM PREVENTION

(Continued from page 347)

to give the new hive another shot of field bees.

In the meantime, whatever queen cells in the old hive are going to emerge, will be holding a beauty contest to see which one is the best, and finally there will be a laying queen. At this time, the old hive can be set back on top of the new one with newspaper between, and a super or supers added; or for increase, moved to an entirely new location.

I was pretty well satisfied with the idea, as I extracted 400 pounds of honey from two colonies the first summer that I did this. I united the old and new colonies that time. The next year, I moved the old hives away, and of course got less honey.

HOLLOPETER'S
Hardy Northern Italian Queens
$1.25 each
50 years of successful queen-breeding on top of the Allegheny mountains.
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We give 4% extra Queens	1-9	10-49	50 & up
2-lb. Pkg. Bees & 1 Queen	$5.10	$4.60	$4.20
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Additional Queens in packages, $1.20 each			
May & June QUEENS	1.50	1.15	1.10

Above prices are F.O.B. Sacramento, Calif. parcel post or express.
Write for information on will call truck orders.

John S. Shackelford **Rio Oso, Calif.**

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ITALIAN
NORTHERN TESTED STOCK
A Dependable Source of
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Serving those who demand the best.

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1-9	10-49	50 up
$1.00	90¢	80¢

Caged fresh from our yards and rushed to you prepaid Air Mail.
Clip and mark, 10c extra.
Quality Does Not Cost — It Pays
THE WILBANKS APIARIES **CLAXTON, GEORGIA**

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All queens postpaid, pkg. F.O.B.

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Order STARLINE queens this season and profit.

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Clipping 5¢ each, marking 5¢ each.

Reg. U. S. Pat. Off.

GARON BEE CO. DONALDSONVILLE, LA.

QUEEN REARING IN YOUR OWN BACKYARD

(Continued from page 333)

before she is placed in this queen box. It is better to have the queen in a dry cage without any queen candy and then fill one end of the cage with candy just before she is to be introduced. Queen candy for home use can be made by working liquid honey and powdered sugar into a very stiff dough. The queen storage box is made like a small three frame nuc box, with screened holes near the top for ventilation and an entrance hole near the bottom that can be plugged. A cover that can be easily removed and also fastened on tight is made of wood. One or two frames to hold the queen cages can be put into this three frame box in which brood or bees are added as needed. The frame to hold 30 standard queen mailing cages can be made from a standard size brood frame by spacing six horizontal bars so that there is at least a three-eighths of an inch space above the queen cages. This space is needed so the workers can feed and cluster around the queen cages. If each queen cage is not plugged tight with metal or cork at both ends they must be kept squeezed together close enough so that the bees cannot get to the candy end and release the queens while they are in storage. When the queen box is not being carried on the truck it is kept in a shady place and the worker bees allowed to fly. This keeps the caged queens in a normal condition until they are needed.

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